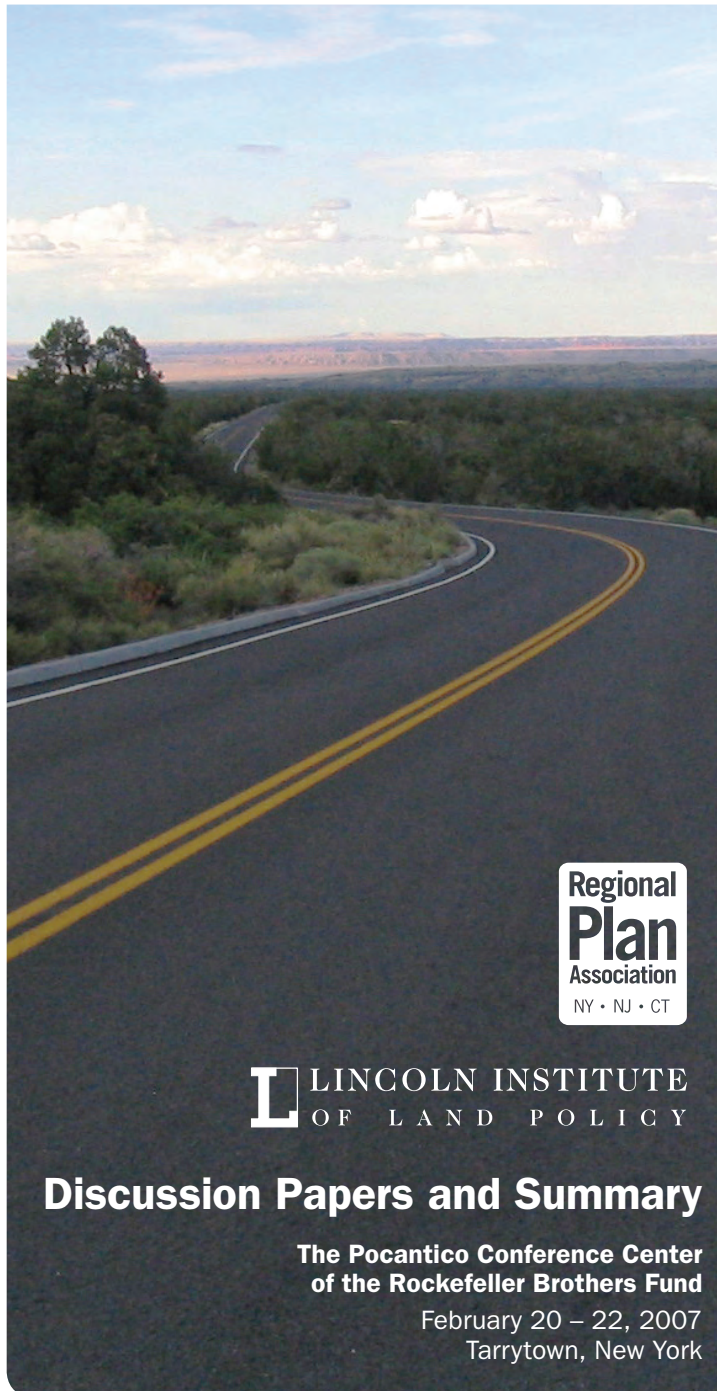


The National Roundtable on **Surface** Transportation



Regional
Plan
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L LINCOLN INSTITUTE
OF LAND POLICY

Discussion Papers and Summary

**The Pocantico Conference Center
of the Rockefeller Brothers Fund**

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Tarrytown, New York



America 2050

America 2050 is a national initiative to develop a framework for America's future growth and development in face of rapid population growth, demographic change and infrastructure needs in the 21st century. A major focus of America 2050 is the emergence of megaregions – large networks of metropolitan areas, where most of the projected population growth by mid-century will take place – and how to organize governance, infrastructure investments and land use planning at this new urban scale.
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Introduction

Robert Yaro
Regional Plan Association

Our national transportation policy is broken. The federal government collects from taxpayers and dispenses almost \$50 billion a year on transportation, yet provides no guidance on what purpose our transportation system should serve and requires very little accountability of how transportation funding is spent.

Given the impact of transportation on our daily lives it seems incomprehensible that such a large amount of money is distributed without using it to make a difference in the things that matter to people and businesses. Yet our transportation policy is stuck in self-perpetuation mode, building roads for the sake of building roads, and transit for the sake of building transit –not to mention an occasional “bridge to nowhere.” All of this money is being spent in the absence of a thoughtful national strategy defining how transportation can help the U.S. meet some of the major challenges that lie ahead.

In less than fifty years, the population of the United States will grow by 40 percent, adding more than 120 million additional people. During that same time, we estimate that the U.S. will add or replace over 80 million housing units. All of this growth is occurring at a time when most of the nation’s big infrastructure systems, including the interstate highways, airports and seaports, are at or near capacity, leaving little or no room for this growth.

Some of the most rapid growth in the nation is taking place at the fringe of metropolitan areas; as these regions sprawl into each other, megaregions are emerging, consisting of networks of adjacent regions linked by overlapping commuting patterns and economic connections. Freight movement will grow exponentially, as we increase the share of foreign trade in our national economy and “just in time” delivery creates more short truck trips on the nation’s roadways. Against this backdrop of growing demand, scientists and policy experts estimate that to avert the catastrophic impacts of global climate change we must reduce greenhouse gas emissions *80 percent* by 2050.

Leaving climate change alone for a moment, just accommodating the projected increases in population and freight movement without overwhelming communities in traffic congestion, air pollution, and road construction will require a major shift in how we coordinate land use and transportation policy. Creating quality communities in this context will require reducing our dependence on cars, which in turn will require a commitment to coordinating land use and transportation decisions – something that is largely absent from national policy today. As we look ahead, environmental exigencies and demographic changes suggest that single-family houses in single-use neighborhoods can no longer be the dominant form of development in America. National policy must lead the transition to more active, mixed-use communities integrated with transportation options.

Maintaining America’s position in the global economy and ensuring its future prosperity will require strategic investments in key global gateways, landside access to ports, intermodal hubs, and freight corridors. On the passenger side, it will require low-carbon, dependable transportation options for intercity trips, replacing short-haul air travel with high-speed rail in select corridors and megaregions. These investments must be led by the federal govern-

ment and should adopt a new intermodal approach that breaks through the decision-making and financial silos that separate road, rail, air and maritime infrastructure. Projects and system improvements should be evaluated for their ability to promote efficient movement of goods and minimize environmental impacts, to facilitate global trade and dependable service for users.

The transportation sector, which is responsible for about 1/3 of carbon emissions in the U.S., has a large role to play in mitigating climate change. As noted by Steve Winkelman in our discussions, reducing carbon emissions from transportation requires action on all three “legs of the stool” – vehicle fuels, vehicle technology, and trip demand (reducing vehicle miles traveled.) Real change will require leadership by the federal government to set emissions caps and improve vehicle efficiency standards, while allowing flexibility and innovation on the part of states and local government to meet those targets. The changes involved in the transition to a low-carbon economy are nothing short of radical, but also present opportunities for the growth of new industries and technologies, which should be supported by national policy.

In short, the word that best applies to the next transportation authorization in 2009 is reform. Incremental changes to the transportation legislation (SAFETEA-LU) that was widely criticized in 2005 for its lack of purpose and profligate earmarks will not be sufficient to tackle the profound challenges that face our nation. The next authorization requires major reform, a bold vision, and a sense of purpose cutting through its programs against which every project can be weighed.

In this spirit, Regional Plan Association and the Lincoln Institute of Land Policy convened a roundtable forum of thirty distinguished leaders and scholars in transportation, planning, and business at the Pocantico Conference of the Rockefeller Brothers Fund to develop transportation strategies to meet the challenges that lie ahead. Included in this volume are the briefing papers for that meeting and selected notes from our conversations.

In the pages that follow, Michael Meyer discusses the major trends shaping national transportation policy in America, providing the context for the next “vision” of national transportation. Gary Maring of Cambridge Systematics outlines the major funding gap around the corner and proposes a range of revenue raising options to maintain and expand the system. And Mort Downey explores the glacial pace of transportation policy reform, providing a history of the three major “waves” of transportation policy in preparation for mounting a “fourth wave” of policy reform in this new century.

This is just one of many conversations taking place across the nation in preparation for the transportation bill in 2009, including the official National Surface Transportation Policy and Revenue Study Commission, which will present its recommendations in December 2007. We hope the ideas provided here can strengthen the call for real reform and plant the seeds of a vision of how transportation can support the nation’s sustainable growth and long-term prosperity.



Toward a Vision for the Nation's Surface Transportation System: Policies to Transcend Boundaries and Transition to a New Era

Michael D. Meyer, P.E.
Georgia Institute of Technology

Introduction

Throughout history, the ability to move people and goods effectively and efficiently has been a prerequisite for a nation's success and economic health. The history of the United States is particularly symbolic of this symbiotic relationship between transportation system capacity and national prosperity. Investments in turnpikes, ports, canals and railroads provided the initial ability for the nation to expand beyond the original colonized coasts, and promote the agricultural and industrial development of the nation's heartland. Similarly, investments in urban transit and streets allowed growing American cities to handle the increasing number of people that were needed to support the massive expansion of the nation's industrial capacity. In more recent times, the construction of the interstate highway system has arguably done more to influence urban America than any other single initiative or program.

In each of the above examples, the purpose of the transportation investment, whether from public or private sources, was clear. The intent was to connect, expand, provide for national defense, promote economic development, or earn a financial return on the initial investment. Public policies were often enacted to foster private investment in adding capacity to the nation's transportation system, such as the land grant program for railroad expansion or federal dollars to improve the nation's ports. Investments were targeted and, at least in the case of the interstate highway network, the national vision was understood. However, since the completion of the interstate highway program, one could argue that there is no longer an agreed-upon vision of what the nation's transportation system should be accomplishing, and perhaps even more importantly in recent years, what the respective roles should be for different levels of government and between the public and private sectors. The purpose of this paper is to provide some thoughts on what such a national vision should include and how the characteristics of this vision relate to the rapidly changing context within which a national transportation system operates. In particular, this paper provides a perspective on what policies and investments should be pursued to shape America's transportation policy in the 21st century.

Looking Back...

A national vision for surface transportation involves all levels of government and private stakeholders in promoting the steps and actions necessary to achieve that vision. Presumably, this vision is formed through consultative processes and serves as the basis for investment strategies and new directions in policy formulation. Federal transportation legislation, originating as it does from elected national representatives, could be considered consultative in nature. Thus, as an example, the statement of policy found in the preamble to the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 is illustrative of a vision for the nation's surface transportation system (see right sidebar). This legislation, in many ways, promoted different ways of looking at the transportation system. For example, although the concept of intermodal connectivity and its impact on overall system effectiveness had been known for

National Surface Transportation Vision As Articulated in the Intermodal Surface Transportation Efficiency Act of 1991

It is the policy of the United States to develop a National Intermodal Transportation System that is economically efficient and environmentally sound, provides the foundation for the Nation to compete in the global economy, and will move people and goods in an energy efficient manner.

The National Intermodal Transportation System shall consist of all forms of transportation in a unified, interconnected manner, including the transportation systems of the future, to reduce energy consumption and air pollution while promoting economic development and supporting the Nation's preeminent position in international commerce.

The National Intermodal Transportation System shall include a National Highway System which consists of the National System of Interstate and Defense Highways and those principal arterial roads which are essential for interstate and regional commerce and travel, national defense, intermodal transfer facilities, and international commerce and border crossings.

The National Intermodal Transportation System shall include significant improvements in public transportation necessary to achieve national goals for improved air quality, energy conservation, international competitiveness, and mobility for elderly persons, persons with disabilities, and economically disadvantaged persons in urban and rural areas of the country.

The National Intermodal Transportation System shall provide improved access to ports and airports, the Nation's link to world commerce.

The National Intermodal Transportation System shall give special emphasis to the contributions of the transportation sectors to increased productivity growth. Social benefits must be considered with particular attention to the external benefits of reduced air pollution, reduced traffic congestion and other aspects of the quality of life in the United States.

The National Intermodal Transportation System must be operated and maintained with insistent attention to the concepts of innovation, competition, energy efficiency, productivity, growth, and accountability. Practices that resulted in the lengthy and overly costly construction of the Interstate and Defense Highway System must be confronted and ceased.

The National Intermodal Transportation System shall be adapted to "intelligent vehicles", "magnetic levitation systems", and other new technologies wherever feasible and economical, with benefit cost estimates given special emphasis concerning safety considerations and techniques for cost allocation.

The National Intermodal Transportation System, where appropriate, will be financed, as regards Federal apportionments and reimbursements, by the Highway Trust Fund. Financial assistance will be provided to State and local governments and their instrumentalities to help implement national goals relating to mobility for elderly persons, persons with disabilities, and economically disadvantaged persons.

The National Intermodal Transportation System must be the centerpiece of a national investment commitment to create the new wealth of the Nation for the 21st century

some time, it was the inclusion of the word “intermodal” in ISTEA that spurred governmental action at all levels in understanding and improving the interconnectivity of the transportation system. Similarly, ISTEA promoted additional flexibility in the use of federal funds so that states and metropolitan areas could use the funds in the ways most appropriate for their needs.

Visions for the nation’s surface transportation system have also been offered by federal agencies or commissions, but, in many cases, these visions often represented a particular administration’s perspective on transportation’s role in the bigger picture of its political agenda. Some examples and the visionary aspects of past efforts include:

**Statement of National Transportation Policy,
Secretary Volpe, 1971**

1. Increase the benefits derived from the preservation and enhancement of the environmental, aesthetic, and social attributes of transportation and its surroundings
2. Minimize the loss of human life and property and the human suffering due to transportation-related accidents
3. Provide that mix of transportation alternatives, including modal systems, related facilities, manpower, research and development, etc., which results in maximum benefits such as service, convenience, comfort, capacity and speed for a given cost
4. Further other objectives of the Federal government whenever they are affected by transportation or whenever the Department can perform a particular task more effectively and efficiently
5. Facilitate the process of local determination by decentralizing decision making and fostering citizen participation

**Statement of National Transportation Policy,
Secretary Coleman, 1975¹**

The transportation sector should contribute substantially to an improved quality of life by:

1. Attaining high standards of safety
2. Protecting the air and water from pollution, reducing excessive noise, and supporting sound land use patterns and community development
3. Bringing people together and closer to the variety of benefits that our culture and economy offer
4. Minimizing the waste of human resources that results from congestion, inadequate transportation service, and inefficient transport operations
5. Providing the lowest cost services to the consumer consistent with safety, a reasonable rate of return on capital a sound government fiscal policy, and other public interests
6. Promoting the most efficient use of scarce, finite and costly energy supplies
7. Creating and maintaining employment and capital opportunities

1) The following list is only a short excerpt from the Secretary’s Policy Statement. Other elements of the vision are found in the original statement.

**National Transportation Policy Study Commission,
June 1979**

1. National transportation policy should be uniform
2. There should be an overall reduction in Federal involvement
3. Economic analysis of intended Federal actions should be used
4. When the transportation system is used to pursue social goals, do so in a cost effective manner
5. Federal involvement in (including financial assistance for) transportation safety and research is required, and
6. Users and those who benefit from Federal actions should pay.

**Transportation Agenda for the 1980s: Issues and Policy
Directions, Secretary Goldschmidt, 1980**

1. To get us through the immediate transition from an energy-rich society to one of increased price and unpredictable supply, we must turn to the lowest cost, most readily available solution we can find—conservation
2. The Federal government must develop long-range conservation and capital investment strategies aimed at protecting our massive investments in the nation’s transportation system and making more effective use of it
3. Improving our nation’s performance in world trade is the surest path to achieving the goals of stabilizing the dollar and increasing job opportunities for Americans....the transportation sector will have a key role in accomplishing this goal
4. Federal transportation programs should be used to stimulate private investment in transport-related and transport-dependent industries. A decade-long transportation investment program should be developed which will assure a nationwide pattern of public and private sector investments
5. A principal issue of the 1980s will be how to maintain mobility for all segments of the population in the face of severely increasing transportation costs and uncertainty of fuel supplies
6. In the 1980s, a challenge will be to use transportation to improve the quality of life and to build better environments, particularly in our neighborhoods
7. Providing greater transportation safety, particularly automobile safety, will require the combined efforts of government and the private sector

Moving America, New Directions, New Opportunities, Secretary Skinner, 1990

1. Maintain and expand the Nation's transportation system
2. Foster a sound financial base for transportation
3. Keep the transportation industry strong and competitive
4. Ensure that the transportation system supports public safety and national security
5. Protect the environment and the quality of life
6. Advance U.S. transportation technology and expertise

These policy statements and embedded visions emphasize several common themes as well as illustrate how a national policy formulated by a government agency will often focus on the problems it is facing at that time (such as Goldschmidt's emphasis on energy costs and availability coming as it did soon after the oil embargoes of the 1970s). Interestingly, all of the policies include transportation safety as a major national goal and relate national transportation policy to such issues as environmental quality and economic competitiveness. In some ways, however, these policy statements represent a disconnect between the high-level policy pronouncements of national transportation leadership, and the actual accomplishment of the announced goals. That is, the policy statements describe important directions and goals that in almost all cases have yet to be accomplished.

Clearly, the federal government has a critical role in promoting and supporting a cohesive and connected national transportation system, in some cases, a role relating to constitutional responsibilities, for example, interstate commerce and national defense. It is often through federal legislation and federal transportation policy statements that a national focus and consensus can be developed on investment priorities and on issues/concerns that warrant federal activity. This might be even more important in the future as domestic economic markets span multi-state regions, thus needing some group to convene key stakeholders or promote multi-state compacts for solving transportation problems, or itself providing policies and/or financial incentives to encourage multi-state solutions. Thus, the influence and role of the federal government in national transportation is critically important for the continued success of a nationally coherent system.

However, one of the defining characteristics of the U.S. institutional structure for transportation planning and decision making over the past 40 years has been the steady decline in the role of the federal government with increasing responsibilities being given to states and metropolitan areas. This increased responsibility, found in legislation and supporting regulations relating to the planning and decision making process, has been augmented with a declining relative share of federal funding for transportation investment. Many metropolitan areas, for example, have created their own dedicated transportation funding source, such as San Diego where in 1987 voters approved a half cent sales tax dedicated for transportation purposes (the program was re-approved in 2004 with 67 percent voter approval). Many states have found new and different funding sources both from the use of traditional governmental taxing powers

and more recently in partnership with private investors. Outside of the National Highway System, the successor to the Interstate highway system as the defining concept of a road network of national significance, investment priorities are established primarily in relation to state and local goals and policy directions. And this is most likely the best place for such decisions to be made. The federal government does, however, provide important contexts for such decisions that often have influence on local decisions, such as the transportation/air quality conformity determination for metropolitan areas that are not in compliance with national ambient air quality standards. The challenge for defining any statement of a national vision for surface transportation is recognizing the changing institutional structure within which investments will be carried out, while identifying the factors that will strongly affect the context within which such decisions will be made.

Looking Ahead...

Part of the title of this paper "Transcend Boundaries" has been carefully chosen to represent a major theme of the paper's argument. The evolving economic, geographic, financial and, to some extent, political context within which the nation's transportation system operates, and will continue to operate in the future, largely ignores jurisdictional boundaries. Global economic markets and world-spanning supply chains pay little attention to passing across a political boundary (except when regulatory or infrastructure barriers cause unacceptable delays, and then the markets adjust). In the United States, economic regions have been evolving for some time that span multiple states and have given rise to megaregions and transportation corridors of national significance. Although lagging many other countries, the United States is rapidly exploring the potential of private financing of infrastructure that has for decades been the responsibility of government agencies, thus transcending another boundary of sorts. The transportation challenges of a rapidly growing urban America have often resulted in allies across the political spectrum joining forces to provide solutions. And the continued connection between transportation system performance and environmental conditions and community quality of life requires a broad vision for surface transportation that transcends a focus simply on the transportation system itself.

Another part of the paper's title "Transition to a New Era" suggests that the United States is entering an era of substantial challenges and opportunities that have not been addressed in prior federal transportation legislation in any significant way. These challenges and opportunities relate not only to evolving global markets and concomitant movement of freight and goods, but also to a growing movement (once again) on the need to protect the natural environment and enhance our quality of life. Nine factors below are offered as important contextual influences on the future of the nation's transportation system, each having important influences on the "what" and "how" of providing a connected and effective national transportation system. These factors include: 1) population growth and related increase in transportation capacity, 2) demographics and corresponding mobility needs, 3) evolving economic markets, 4) transportation system preservation, 5) technology, 6) financing capacities, 7) changing institutional structures, 8) environmental imperatives and 9) energy supply and price.

Figure 1 shows how these factors link to the performance of the nation's transportation system. It is important to note whereas "congested transportation facilities" is often identified as one of the most important issues facing states and metropolitan areas.

Congestion is viewed in Figure 1 as simply a characteristic of system performance, not a determining factor. However, Figure 1 does show an important relationship between the performance of the transportation system and the outcomes enabled by this performance. Thus, for example, national, inter-regional and community connectivity; national competitiveness; community development; environmental quality; national and personal security; and quality of life are enabled by the existence and operation of the transportation system. I would suggest that these desired outcomes become the basis for a vision of a national transportation system, and of the corresponding national transportation policy.

Space limitations allow only a brief discussion of the factors shown in Figure 1. For some, such as financing capacity and changing institutional structures, additional material is found in the papers by Mort Downey and Gary Maring.

Population Growth – The United States reached a milestone in 2006 – the population increased to over 300 million. This population is expected to grow to between 380 and 390 million by 2035. With this growth in population will come new demands on the transportation system, both in providing mobility for person trips as well as for delivering the food and goods this population will depend on. For freight, the increase in economic activity that corresponds to this population growth means greater movement of

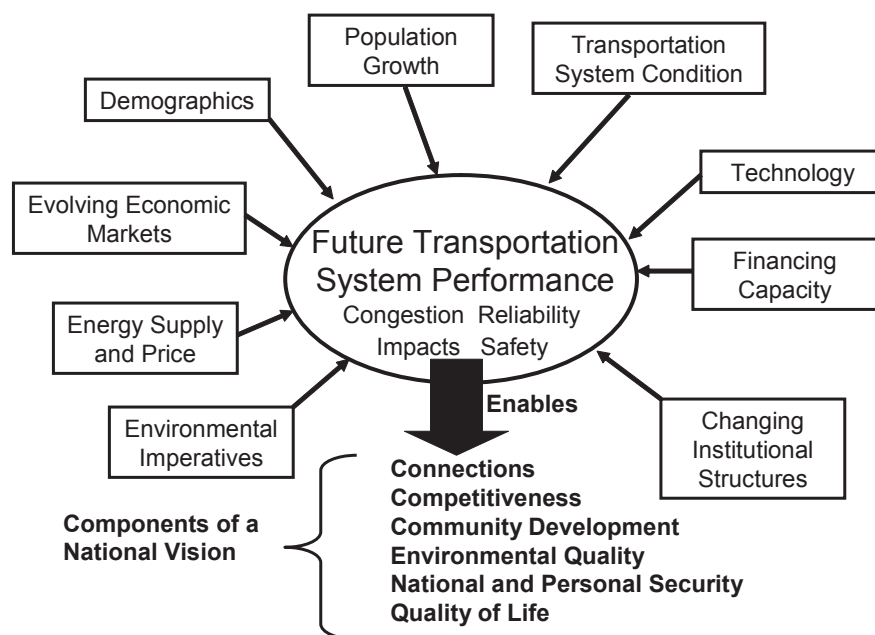
goods. For example, a recent estimate is that between today and 2035 there will be an 89 percent increase in the tonnage moved, a 92 percent in ton-miles, and corresponding significant increases in truck miles traveled.² By far trucking will be the major means of moving freight in the future, even more so than today. These trucks will not only be using the interstate highways that connect markets and production centers, but will also result in even more trips being made on local streets and roads in delivering goods and services.

Where population and employment growth occurs will also have dramatic impact on transportation system performance.³ Most of this growth will occur in metropolitan areas, in some cases, in reinvigorated center cities and, in other cases, new development will continue historical trends by locating in suburban and exurban locations. In the absence of public policies that link housing and employer location decisions to the costs to society of these decisions, the location of new housing and employment sites in the future will largely respond to factors that influence the desirability of the development market. These include such things as the price of land, local tax burdens, school quality, proximity to community services, commonality with shared ethnic values, transportation system congestion and special factors relating to the potential buyer market (for example, access to urban amenities for the empty nesters).

2) AASHTO, Freight Demand and Logistics, Bottom Line Report, draft, Washington D.C., Dec. 2006.

3) A 2003 United Nations study estimated that by 2030, 87 percent of the population in North America would live in urban areas, the largest percentage in the world, greater even than Asia, Europe or Latin America.

Figure 1: Enabling Factors Influencing Future Transportation System Performance



In summary, the growth in population and where this population locates will place increasing pressures on governments at all levels to provide transportation infrastructure and services, even though the mechanisms for providing this service might be very different from historical practice. In the absence of development market-influencing policies, this growth will likely continue past trends, with noticeable exceptions in the population growth in many center cities.

Demographics – The changing profile of the U.S. population will perhaps have more of an impact on transportation than the actual increase in population. Put simply, the U.S. population is aging and changing in demographics. According to a recent report from AASHTO, “children and working age adults will continue to make up the majority of the U.S. population, but the number of children below age 21 will grow at a compound annual growth rate of only 0.6 percent, and the number of working age adults age 16 to 54 at a rate of only 0.4 percent. In contrast, the number of adults age 65 to 84 will grow at 2.4 percent and the number of adults age 85 and above will grow at 3.0 percent.”⁴

The nation’s population profile is also changing with respect to ethnic background. The fastest growing non-White ethnic group is Hispanics, with an estimated increase in the nation’s Hispanic population between 2000 and 2050 of 67 million (compared to 74 million for Whites). In the period 2030 to 2040, absolute increases in the Hispanic population will for the first time outpace that for the White population. By 2050, the population will be approximately 50 percent White alone, 24 percent Hispanic of any race, 14 percent Black, 8 percent Asian,

and 4 percent all other races.⁵ This shifting make-up of the population is particularly pronounced in major metropolitan areas, historically the magnet for new immigrants to the United States.

It is not clear whether either the aging or the shifting ethnic background of the population will create a movement toward more compact development or whether it will continue historical metropolitan expansion trends. Very clearly, there has been a pronounced increase in population in central cities over the past several years, as empty nesters look to move to a more appealing urban environment and young (child-less) professionals enjoy the lifestyle and (initial) affordability of newly renovated city neighborhoods. With public policies and market inducements put in place to encourage the continuing increase in central city population, the next 20 years could be a major benchmark in positioning many cities for the remainder of the century.

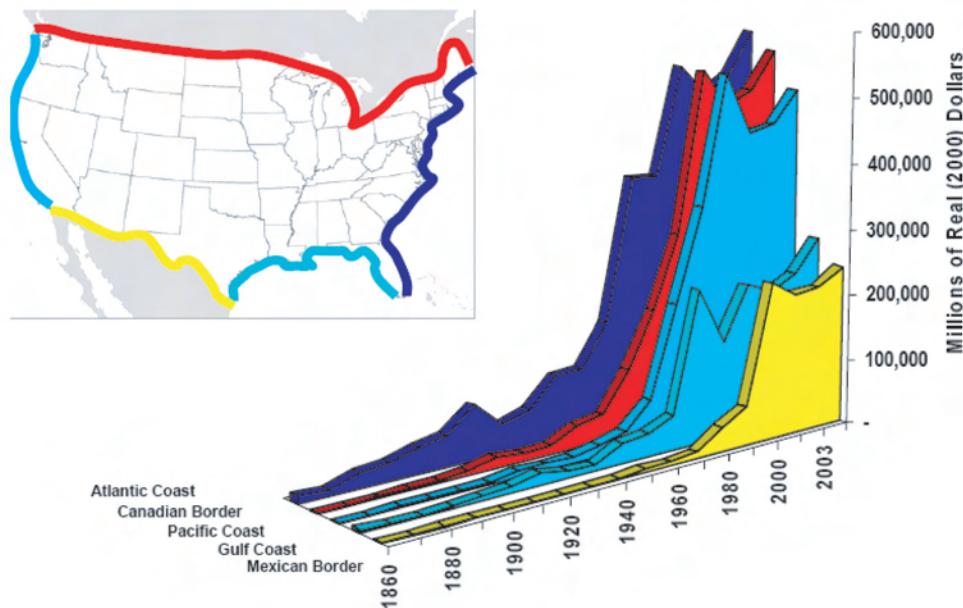
The implications to the transportation system of the changing national demographics will be challenging, not only to government agencies, but also to individual families. Although many older Americans will continue to drive, many will be unable or unwilling to do so. This will place an increasing burden on other family members, and will also likely lead to desires for new and targeted transit services. Large concentrations of ethnic groups in metropolitan areas will most likely lead to very specific types of transit or ridesharing services aimed at these markets (we have been seeing this for some time at a smaller scale in many U.S. cities).

4) See Note 2 Above

5) U.S. Census Bureau, “U.S. Interim Projections by Age, Sex, Race and Hispanic Origin,” March 18, 2004.

Figure 2: Growth in U.S. Trade by Border Region

Source: AASHTO, *Freight Demand and Logistics, Bottom Line*, draft, Washington D.C., Dec. 2006.



In addition, the aging driver creates other challenges in terms of vehicle design, operational strategies and road signing, and emergency response. With reaction times and reflexes much reduced from younger years and with a more fragile body, it is not surprising that the older driver has a much higher fatality rate than mid-age drivers. The combination of aging and an increased propensity to drive as compared to historical levels will likely be a significant challenge in the coming decades.

In summary, the aging and changing demographic characteristics of the U.S. population will likely have profound and lasting effects on the manner of personal transport for many in the future, and will increase demands for services that are targeted at market populations very different than what we have today. New demands from these market populations for housing choices and community services, improved access to cultural and recreational sites and easy access to interstate travel, all lead to a transportation system that is not focused so much on aggregate flows, as it is on individual and group travel patterns.

Evolving economic (and thus geographic) markets – There is no need to examine in great detail one of the defining phrases of the 1990s and 2000s, “we live in a global market,” because most everyone now agrees. However, the level of understanding of what this phrase means especially to future transportation needs is perhaps not as evident. Figure 2 shows the change in international trade with the United States, one aspect of the changing national economic market. Ever since 1980, international trade with the United States has grown significantly, with substantial demands being placed on the nation’s ports of entry and on the transportation arteries that serve them. One only has to go back to 2002 and the west coast dock strike to see what happens when international trade is obstructed—disruptions in manufacturing, loss of retail sales due to no delivery of stock, and economic losses to shippers and carriers. International trade via bulk, container and air cargo movements is expected to grow dramatically over the next 30 years. The globalization of many manufacturing processes and the dependence of the United States’ economy on globe-spanning supply chains suggests that the movement of freight will become a much greater concern in future years than it has been in the past (at least for the public sector; clearly trucking and rail companies have always been concerned). This concern will not only focus on ports of entry, but on major arteries and local roads where much of the freight is ultimately destined.

Figure 3 shows another aspect of the evolving markets phenomenon that will have a significant impact on transportation system performance and investment. Worldwide, major economic markets are emerging that transcend country and city boundaries.

These markets often include major consumption as well as production centers, and in their own right represent major economic engines of their respective nations. Figure 3 suggests that there are nine megaregions emerging in the United States, with several other regional centers acting as important market centers for their region. Each of these megaregions (except possibly the one in Florida) has influence areas that include many states and numerous urban centers. It seems highly likely that the future economic success of the United States will be found in these megare-

gions, thus drawing attention to the transportation needs internal to each region, access between, and connections to the global market. The transportation connections within megaregions will need particular attention in that these connections not only support the economic activities of the megaregions themselves, but also serve as gateways to the rest of the nation. Longer distance, inter-megaregion transportation challenges will become even more apparent in future years as the nation’s economy becomes more intertwined with the economic and financial activities occurring in all of the megaregions in the country.

In summary, the future economic success of the United States will be tied closely to the ability of the nation’s economic centers or megaregions to connect to the global economy. This suggests that not only should transportation investment focus be given to the nation’s major ports of entry and the related transportation facilities serving them, but also to the effectiveness of the internal transportation system in these economic centers.

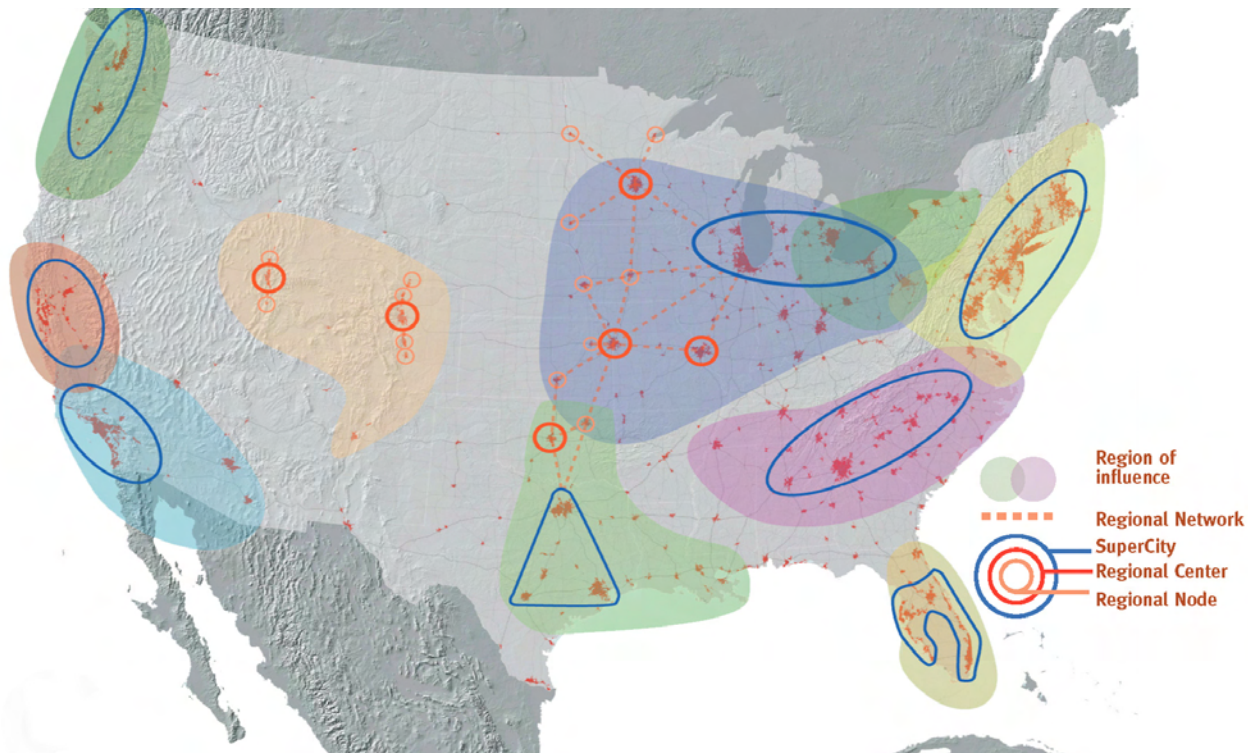
Transportation system preservation – The United States has invested an estimated \$1.75 trillion in its transportation system, including all levels of government and all modes of transportation. Much of this infrastructure was built in the 1950s and 1960s and is now entering into the final stages of its useful life. What this means to infrastructure owners is that substantial investment must be made to rehabilitate or reconstruct this infrastructure, and to provide preventive maintenance efforts to prolong the life of facilities that have yet reached the reconstruction stage. In many states and metropolitan areas, well over 50 percent of the total investment budget is dedicated to system preservation.

The confluence of system preservation needs with pressures to provide more system capacity or improved performance is, and will continue to be, a major challenge to transportation decision makers. Just as we face rising concerns about congestion and acknowledge the importance of efficient transportation for economic competitiveness, many states and metropolitan areas are faced with a “bill due” on their previous investments. And although most transportation system users understand the need to keep the bridges from falling down and transit vehicles from malfunctioning, such investment does not often capture the imagination or votes of those responsible for providing transportation dollars. It seems likely that the increasing system preservation needs of the nation’s transportation system will motivate the more successful transportation organizations to combine strong asset management principles and programs with capacity expansion initiatives, with the latter perhaps funded via special purpose programs or in partnership with private groups.

In summary, although certainly not one of the most stimulating issues in political forums, preserving and maintaining the existing transportation system infrastructure will increase in importance over the next several decades. In fact, in most states and metropolitan areas, such needs will dominate investment priorities in the foreseeable future.

Figure 3: Evolving Megaregions in the United States

Source: Carbonell et al, *Global Gateway Regions, The United States of America's Third Century Strategy*, Southern California Association of Governments, Los Angeles, CA, Sept. 2005; based on "Toward an American Spatial Development Perspective," University of Pennsylvania, Department of Planning, Spring 2004.



Technology – The technology of transportation, that is, the system control and monitoring systems, information technologies, propulsion and the vehicles themselves, will significantly influence the use and resulting impacts of future transportation systems. For example, the reduction in most transportation-related air pollutant emissions over the past 30 years has been predominantly caused by new lower emission engine technologies. The development of hybrid and hydrogen vehicles, when and if they penetrate the consumer market in significant ways, could go a long way toward further reducing motor vehicle-based air pollutant emissions and reducing petroleum-based fuel consumption (although they will not do much to reduce congestion). The application of sensors and navigational systems to the operations of the transportation system will build upon the legacy of ISTEA when the then called intelligent vehicle highway system, now called intelligent transportation system-ITS, program was created. The technology of today, and certainly of tomorrow, will enable the universal identification and tracking of vehicles and cargo that should improve the efficiency and security of the transportation system. And the increasing use of new combinations of information systems technologies for recreational, educational, and purchasing purposes will have influences on individual behaviors including travel patterns that are yet unknown.

Predicting the exact nature of the potential influence of new technologies is uncertain at best. However, it does seem that, in general, new technologies will make traveling easier and safer, and that although telecommunications technologies have been used to substitute for travel move-

ment, there does not appear to be any technology that will reduce in significant numbers the expected trips that will be made on the nation's transportation system.

In summary, modern society is largely defined by the technologies that are used to support an individual's everyday activities and the foundational technologies that keep communities functional (such as water, transportation, waste removal, and power technologies). Absent any major disruption in the nation's economic structure, new technologies will likely play a significant role in how the nation and individual citizens conduct their business in future years. This is likely to be especially true for the management and use of the transportation system.

Financing capacities – Much of the national, state and metropolitan debate that surrounds the future of transportation usually focuses on where the funding will come from to support needed investments. The capacity of all levels of government to provide the level of funding that is considered necessary for maintaining and expanding the nation's transportation system is, in most cases, strained beyond the political will and ability found within government. However, as noted earlier, with increasing population and economic-related needs, the demand on the nation's transportation system will only get greater. This creates a significant challenge to the current financing structures for transportation investment, especially in light of declining financial resources coming from the federal government.

In response, many states, metropolitan areas and local governments have created their own funding source or sources dedicated to transportation purposes. In recent years, several metropolitan areas have approved transportation funding sources for regional investment programs (usually a dedicated sales tax). Many states have begun the process of developing public/private partnerships in promoting private investment in their road network. And in still others increased funding for transportation has followed the traditional channel, which is to increase motor vehicle-related taxes. It seems likely that future financial solvency for transportation programs will depend on having a menu of financing options that provides funding from a variety of sources, with the mainstay in the short term still being the gas tax.

However, there are several characteristics of the financing dilemma that merit concern.

1. Much of the debate over future financing has focused on road investment, with little attention given to other modes such as transit and pedestrian/bicycle facilities. Public/private partnerships at the magnitude of those discussed in recent years have largely targeted road projects. Where will the funding come from for a truly multi-modal transportation investment strategy?
2. Public/private partnerships will likely be a major component of future transportation finance in the United States. However, by definition, the private investors in such partnerships are interested only in those components of the road network where toll receipts will provide a desirable return on investment. How can we structure such partnership arrangements so that the benefits to society encompass more than just the most profitable routes?
3. Although the mainstay of road financing in the United States is the petroleum-based gas tax, a change to a new vehicle fleet mix and increased reliance on more fuel efficient and alternative fueled vehicles will likely result in declining gas tax revenues, even more than being experienced today. The United Kingdom has decided to pursue a distance-based funding scheme, one that collects receipts on the basis of the usage of the road network rather than the consumption of fuel. What should be the future basis for funding the U.S. transportation system?
4. Although for years, economists have argued that correctly pricing the use of a transportation system will result in economically optimal utilization, there has been little implementation of such pricing strategies in the United States. In recent years, some jurisdictions (such as in southern California) have adopted dynamic pricing strategies for transportation facilities and have generally found them to be successful. Other states and metropolitan areas are now studying the feasibility of adopting pricing strategies especially for new additions to the road network. How do pricing strategies fit into state or regional investment financing approaches? And what are the equity implications of using such strategies on the different population groups in a typical metropolitan area?

5. Many states and local governments have adopted financing strategies that rely on borrowing funds with requirements for paying back the principle and interest at future dates. Although the benefits of investment today in pure economic terms likely offset the future payments, in financial terms these governments are incurring debt that must be repaid with future receipts. To what extent are governments constraining future financial investments in transportation with their borrowing today?

In summary, the future will likely see a much wider variety of financing strategies used to support the transportation system, although in the short term the gasoline tax will likely continue to be the major source of road finance. New financial strategies will include a combination of public and private initiatives, and the application of pricing schemes that will result in some additional financial resources.

Changing institutional structures – To a large extent, today's road and transit systems are the result of decisions made by public agencies that are responding to policies and mandates established by federal, state or local governments. Although institutional structures can be created for a variety of reasons, the history of transportation in the United States suggests that the source of funding and the means of distributing funding receipts has a significant influence on institutional arrangements. In the period of rapid road network expansion during the 1960s and 1970s, much of the investment was supported by funding sources that provided stable and long-term commitments to network expansion. This is not the case today. As a result, many states and metropolitan areas are seeking alternative institutional means of providing the transportation investment necessary. This has included new government agencies (such as toll road agencies), new special authorities having part governmental and part private sector capabilities, partnership arrangements between public and private agencies where each has an important role in delivering the service, and completely privatizing the provision of infrastructure. In the absence of any major new federal financial support for transportation investment that would utilize existing institutional channels for delivering projects, one can expect even more institutional experiments being tried in future years.

In addition to the financial influence on institutional structure, one also sees the jurisdictional and governmental accountability aspect of how institutional arrangements evolve. Perhaps the best example of this and of the challenge associated with jurisdictional prerogatives is found in multi-state metropolitan planning organizations (MPOs). In such instances, the urban boundary of a metropolitan area extends beyond one state and thus requires the involvement of many different state and local agencies in developing a metropolitan-wide strategy for the transportation system. This often does not occur without conflict and disagreement....and, in some cases, stalemate. But as noted in the first section of this paper, transportation flows do not recognize jurisdictional boundaries, and this will become even more striking in the future. There are already several examples of new institutional structures and approaches that, in my opinion, will become even more prevalent in future years, including the I-95 Corridor Coalition, the NAFTA international trade corridors, the Heartland corridor project, etc. Each of these is an effort to transcend

jurisdictional boundaries and to develop strategies that focus on the effectiveness and efficiency of the transportation system, regardless of who is in charge.

In summary, due to the changing financing strategies that will likely characterize future investment programs, and to the changing geographic definition of markets, future institutional arrangements will likely include many different structures and strategies over what we see today. In many ways, this will allow states and local governments to deal with the increasing transportation challenges they will be facing.

Environmental imperatives – The environmental quality context for transportation decision making could be one of the most important long term factors influencing the type of transportation systems we will have in the future. At the same time, it is also one of the most uncertain given the likely need for governmental action (and thus corresponding compromises and delays) to set the institutional framework within which investment decisions are to be made (assuming, of course, that public and private organizations do not themselves voluntarily take steps to reduce environmental impacts of their decisions). It is interesting to note that if one takes a long perspective of the evolution of national transportation policy, one of the defining characteristics in the U.S. and in other developed countries has been the increasing incorporation of environmental factors into the investment decision making process. Indeed, bell weather states such as California, Minnesota, Oregon, Washington and Wisconsin have state laws for considering environmental factors in transportation decision making that go much beyond national requirements.

There is very little evidence that public support for actions to improve environmental quality is waning, and if anything, seems to be getting stronger. And, in my opinion, this is true also about global warming and carbon emissions. Slowly, but surely, scientific evidence is chipping away at the reluctance of some in government and business to acknowledge the human influence on the global environment. Whether in the foreseeable future we will see in the United States the adoption of a “carbon budget” or of a carbon emissions trading program on a widespread basis is unclear. However, it does seem inevitable that when serious policy attention is paid to this issue, the transportation system will be affected significantly given the relative contribution it makes to carbon emissions nationally.⁶ The programmatic responses can range from the development of new vehicle fuel sources to strategies that reduce the need to travel.

In summary, one of the most significant factors affecting the future of transportation decision making is likely to be the continuing public and policy concern for preserving and enhancing environmental quality. This will be especially true for the inevitable (in my opinion) movement to control the emission of greenhouse carbon gases.

Energy – One cannot talk about the future context of transportation without discussing energy supply and pricing. The current dependence of the U.S. transportation system on petroleum-based fuel supplies not only leaves the nation dependent on uncertain sources of supply, but also subjects the economy to wide variability in fuel costs. The current national initiative on the hydrogen economy and corresponding interest in a hydrogen-fueled vehicle relate directly to the desire for alternative sources of energy. The transformation of the transportation system from its currently based energy source to another would be both dramatic and time-consuming. The timeline for fleet turnover is measured in decades not years, and although financial incentives could be used to hasten this transformation, there would likely be a need for dual energy distribution systems for some time. Although the timeframe for conversion to a new energy source will be long, there is every reason to encourage the development of alternative fueled vehicles and the infrastructure needed to support them even more than has been done to date.

One of the challenging aspects of developing a national energy policy that makes sense is that different strategies could be used depending on what it was you were trying to accomplish. For example, Professor Ken Small recently made a presentation at the Transportation Research Board meeting in which he laid out the following tradeoffs:⁷

- If the policy objective is energy security, then the strategies should include use of tar sands, coal liquefaction and oil shale. These strategies, however, contribute to global warming.
- If the major policy objective is to reduce global warming, then the nation should substitute oil or gas for coal (which is bad for energy security), use of adaptation and sequestration (which would be ineffective in enhancing the nation’s energy security), or use biofuels (which at the current time is very expensive).
- If both of these objectives are desirable, the most effective strategies would include nuclear energy, use of ethanol and energy conservation.

In the short term, the federal corporate average fuel economy standards (CAFE) should be rigorously examined from the perspective of their effectiveness, and loopholes that currently exist (for example, for light duty trucks) should be closed. Incentives should also be provided to the motor vehicle industries to produce energy efficient technologies and designs.

In summary, energy supplies and pricing in the long-term could be one of the most defining characteristics of how the U.S. transportation system is managed and used. Moving toward energy independence will require a concerted effort over many decades in both the development and implementation of new technologies to transform the U.S. transportation system. In the short term, CAFE standards should be made more stringent, and energy conservation should once again take its place among the many factors that are considered important when investment decisions are made for the transportation system.

6) In 2003, the Environmental Protection Agency estimated the 27 percent of the nation’s greenhouse gas emissions came from the transportation sector. See, Environmental Protection Agency, Greenhouse Gas Emissions from the U.S. Transportation Sector, 1990-2003, Office of Transportation and Air Quality, Washington D.C., March 2006

7) Ken Small, “Is Energy Policy the Tail Wagging the Dog?” Presentation before the Executive Committee of the Transportation Research Board, January 24, 2007, Washington D.C.

Toward a National Vision

The United States stands at a crossroads with respect to its transportation system. Arguably, the nation is facing decisions on the financial future of transportation that could lay the groundwork for transportation solvency over the next 50 years. The demand that the nation is likely to see for personal and freight travel will be comparable to the fastest historical growth in travel experienced by the country. Important “defining contexts” for transportation are edging toward conditions that could well force the transportation community to respond, such as controls on greenhouse gas emissions and petroleum-based fuels or the changing nature of the travel markets themselves. The condition of much of the transportation system is such that preventive maintenance, rehabilitation, and/or reconstruction projects will be a much greater need in future years, thus competing with new capacity projects for limited resources. And the very nature of global and national economic development will place additional pressure on the nation’s, states’ and metropolitan areas’ transportation systems to provide effective and efficient transportation connections.

The phrase “Transition to a New Era” in the title of this paper reflects the potentially different transportation environment the nation could be facing 30 years from now. A national vision, supported with federal legislation, should provide the platform from which the nation can prepare itself and perhaps even influence this future. Historically, very seldom does federal legislation adopt a seminal perspective on the programs and initiatives that it creates (see Mort Downey’s accompanying paper). The 1956 Interstate Highway and Defense Act along with the accompanying act that established the Highway Trust Fund represents such seminal legislation. The 1962 Federal Aid Highway Act, which established the “3C” transportation planning process, is another landmark piece of legislation that has had lasting impact on the transportation development process. One could argue that ISTEA in 1991, representing as it did the first major federal transportation legislation after the “completion” of the interstate highway system, is another seminal event in federal transportation legislative history. The important question now facing the nation is whether the next federal legislation will simply be an incremental adjustment to the current law, or whether it will outline a new vision for the future of the nation’s transportation system. The following thoughts are offered from the perspective that what is needed is a vision that lays the groundwork for defining the place of transportation in a broader societal context and to prepare the transportation system for the challenges and opportunities of the future.

What should be a national vision for transportation? As noted in Figure 1, such a vision should include primarily the outcomes desired by the nation as they are enabled by the transportation system. However, the specific wording of a national vision for surface transportation is not as important as the underlying principles and policies that guide it. Therefore, the following paragraphs provide some suggested policies that could define the characteristics of a national transportation system, and relate therefore to possible federal action (although the federal government is only one actor in the much bigger picture).

Surface Transportation System

- The growth in population, employment, international trade and domestic economic activity suggests that the nation’s transportation system will be facing even greater demands than today’s system. It is in the national interest to provide a national transportation system that connects its citizens, promotes economic vitality, protects national security and enhances public health. There is thus a strong role for the federal government in providing the vision and (some of) the financing for this system.
- The nation’s transportation system exists to support the economic and personal aspirations of the nation’s citizens and businesses. Accordingly, investment in this system should be linked to, and measured by, how investment enhances and allows such aspirations. This suggests continued flexibility in the funding programs that support transportation investment that allows state and local decision makers to target investments on the most effective and appropriate projects. In addition, this suggests that future investment will have to consider the changing demographic characteristics of the population.
- The current investment in the nation’s transportation system should be preserved and protected through the adoption of effective asset management approaches. For those portions of the transportation infrastructure that have received federal funding, the adoption of a formal asset management system should be required. This policy would be implemented for both state DOTs and MPOs.
- The transportation system should be managed and operated to utilize fully the infrastructure that currently is in place. This suggests the application of system management technologies, reduction of demand in highly congested corridors through shifting of travel times and other means, use of pricing to encourage best utilization of limited infrastructure, and implementation of operational strategies to reduce bottlenecks and conflicts in travel flow.
- Facility or system pricing is a strategy that is being considered in many parts of the world, including in some parts of the United States. Equitable pricing of the transportation system should be a strategy that is encouraged in those areas where limited infrastructure results in congested conditions.
- Priority areas should be identified for national investment and resources allocated to provide measurable progress. For example, some investment programs should be targeted on the nine megaregions noted in this paper to enhance the global competitiveness of the United States. This investment would be linked closely to the emerging growth patterns that are occurring in these regions, and on inter-regional transportation needs. Thus, national investment might very well target inter-city transportation needs (such as, high speed rail) that not only provides intra-regional travel options, but also enables connections to other megaregions. National investment strategies should also examine those areas “being left out” of the evolving economic market structure of the megaregions.

- It is in the national interest to reduce impediments to the international flow of goods given the importance of transportation to global supply chains. Some national investment should be targeted at bottlenecks in the national freight transportation system. States and metropolitan areas should be encouraged to examine the feasibility of freight-only road facilities for their road network. Other mechanisms (such as an investment tax credit) should be provided to providers of transportation to encourage their own investment in transportation capacity.
- The United States is falling behind other western nations in its road safety record. Reducing the number of fatalities and other crashes requires a combination of both infrastructure and behavioral strategies. Although safety is listed many times as a transportation agency's first priority, the safety record often continues to worsen. Infrastructure investment, new vehicle and network technologies, enforcement strategies, driver education, and many other similar types of efforts should be part of a national effort to reduce the societal costs associated with crashes.
- Studies of terrorist attacks world-wide show that the service or infrastructure most often targeted is transportation. Our society and economy are vulnerable to attacks against the nation's transportation system, and thus steps must continue to prevent such attacks through surveillance and hardening of the existing network against the damage that might occur when such an attack is successful. More broadly, the vulnerability of the transportation system to natural disasters also suggests that the transportation community has an important role to play in preventing, identifying, responding to, and recovering from major disruptions in normal transportation operations. The state DOTs and MPOs should be "at the table" when emergency management and disaster recovery plans are being formulated.
- Transportation is a major contributor to many of the environmental concerns facing society. As such, environmental impacts should be viewed not so much as something that need to be mitigated as part of a project development process, but rather as part of the environmental stewardship of the state. Thus, similar to policies adopted in some European countries and New Zealand, a sustainability framework becomes the most important "point of departure" for considering investment in the transportation system. This might also be implemented by requiring every state DOT to have an environmental management system.
- The reduction of carbon-based pollutants should rise in importance when making investment decisions. Until vehicle propulsion technologies are used generally throughout the fleet based on non-petroleum-based fuels, it is in the national and global interest to find ways to reduce the emissions of carbon-based pollutants. The transportation-related release of carbon-based emissions should be a national indicator monitored annually, with appropriate measures used at the state and metropolitan levels as well.
- Although motor vehicle taxes will remain the most important funding source in the near term, financial solvency of the transportation system in the future will depend on a wide variety of funding mechanisms and innovative financial strategies. It is in the national interest to promote, foster and encourage the development of such approaches to financing the transportation system.
- Transportation projects that benefit the freight community should be eligible for public funding, under guidelines that stipulate the public benefits of such investment.
- New transportation financing mechanisms should be developed in anticipation of changes in fuels, motor vehicle fuel economy, and allowable air pollutant emissions. Given the time it takes to develop new policy initiatives, especially those that disrupt well-established structures, steps should be taken now to develop a phased implementation strategy for establishing a sufficient and stable funding source in the future. This is a national issue, and certainly one that affects states and metropolitan regions. It is likely that the small, but noticeable trend in metropolitan-based transportation funding sources will continue to grow.

Context Factors

- New decision making structures should be encouraged (where needed) that reflect the changing multi-state and multi-jurisdictional nature of the evolving economic market and corresponding provision of transportation services. Incentives should be provided that encourage multi-state solutions to multi-state transportation problems.
- The relationship between urban structure, urban design and transportation investment will become even more influential in defining community quality of life in the future. Transportation planning should be encouraged more strongly to connect the three when making investment decisions (similar in concept to the station area planning efforts that occur when new light rail lines are designed). This might also imply the formal adoption of a context sensitive solutions (CSS) approach to project development.
- Public/private financing partnerships will be an important part of the future financing of the nation's transportation system. However, by their very nature, they will tend to focus on a limited number of miles of the nation's road network. Some attention should be given to how such partnerships can be structured to encompass more than just those roads that have the highest volumes.

This paper has examined a very broad topic—what should be the vision for a national transportation system?, and what policies would provide a path for achieving this vision? In the limited amount of space available, it is likely that important dimensions of such a vision and of the policies that enable it have been missed or not been treated in sufficient detail. However, in the United States, the creation of such a vision and policies necessarily occurs within a public forum where good ideas are vetted resulting in the eventual formulation of a national transportation strategy. Hopefully, this paper has provided enough fodder for such a discussion. The most fundamental concept that this paper puts forth is that the nation (and the world) is arguably in the path of a wave that will overwhelm us unless we think about how to use that wave to our advantage. Environmental challenges, energy concerns, community quality of life, and increasing deterioration of transportation system performance all suggest a fundamental transition in the way we look at transportation. Not only does this transition imply transcending boundaries as broadly defined earlier in the paper, but it also implies new funding concepts, institutional arrangements and ultimately new ways of investing in the nation's transportation system that truly connects transportation to the desires and needs of a growing population.

Future Financing Options to Meet Highway and Transit Needs

Gary Maring
Cambridge Systematics

Introduction

The objective of this paper is to analyze options for all levels of government to close the nation's highway and transit investment deficits on a sustainable basis both short- and long-term. It is organized into five key sections as follows:

- ▶ Current Funding Picture at all Levels of Government
- ▶ Funding Gap Including Highway Trust Fund Solvency
- ▶ Short-Term Options for Closing the Gap
- ▶ Making the Long-Term Transition
- ▶ Overall Conclusions

I. Current Funding Picture at all Levels of Government

The FHWA Highway Statistics and the FTA National Transit Database (NTD) compile summary data on Federal, state, and local funding sources used by state DOTs, local governments, and transit agencies to support highway and transit investments. These data sources were used to identify funding sources, levels of annual funding, and historical trends. For highways, data was reviewed for the last 25 years, whereas for transit, data was available in a consistent format for only the last 11 years. The most recent data available from both sources is for 2005.

Revenues collected in 2005 at all levels of government totaled \$137.7 billion for highways and \$39.4 billion for public transportation as shown in Table 1. Of the \$177 billion total, Federal revenues used for highway and transit programs constitute approximately 23 percent of the total, state revenue about 42 percent, and local about 35 percent.

Motor fuel taxes and motor vehicles taxes and fees are the main sources of revenue for highway investments at the state level as they are at the Federal level, accounting for 73

Table 1. Highway and Transit Revenue from All Levels of Government
Billions of Dollars (2005)

Revenue Type	Federal	State	Local	Total
Highway	\$33.1	\$66.1	\$38.5	\$137.7
Transit	\$6.9	\$8.2	\$24.3	\$39.4
Total	\$40.0	\$74.3	\$62.8	\$177.1
Percent	23%	42%	35%	100%

to 80 percent of the total state highway funding over the last 25 years. Of the other sources (i.e., toll, general fund, specialized taxes, and miscellaneous), specialized taxes such as sales taxes are the ones that have increased significantly in terms of funding share over the last 25 years.¹ Specialized taxes accounted for 1.4 percent of the state highway funding in 1978, increasing to 5.6 percent by 2004. Tolls have increased slightly in share in recent years to about nine percent of total state highway revenues in 2004.

At the local government level, general fund and property taxes account for most of the highway funding. In 2003, highway funding from general fund and property taxes accounted for about two-thirds of the total highway funds. The shares of these revenue sources have declined over the last 25 years, due to increases in the funding share from specialized taxes such as local option sales taxes. Specialized taxes accounted for 2.8 percent of the local highway funding in 1978, increasing to 11.4 percent by 2003.

For transit, passenger fares and other operating revenues accounted for 37 percent (excluding Federal allocations and apportionments), over the last 11 years on average. General funds, the next largest share, have declined over time, whereas specialized taxes such as dedicated sales taxes have become an increasingly important revenue

1) Specialized revenue sources include local-option sales taxes, lease revenues, and improvement district levies. They are typically applied to consumers, landowners, businesses, and homeowners. These sources are distinct from user fees because they are applied to non-transportation consumption and activity. The largest and most rapidly growing source of specialized tax revenue is state and local option sales taxes.

Figure 1. Highway and Transit Revenue from All Levels of Government
2004 C&P Adj + O&M

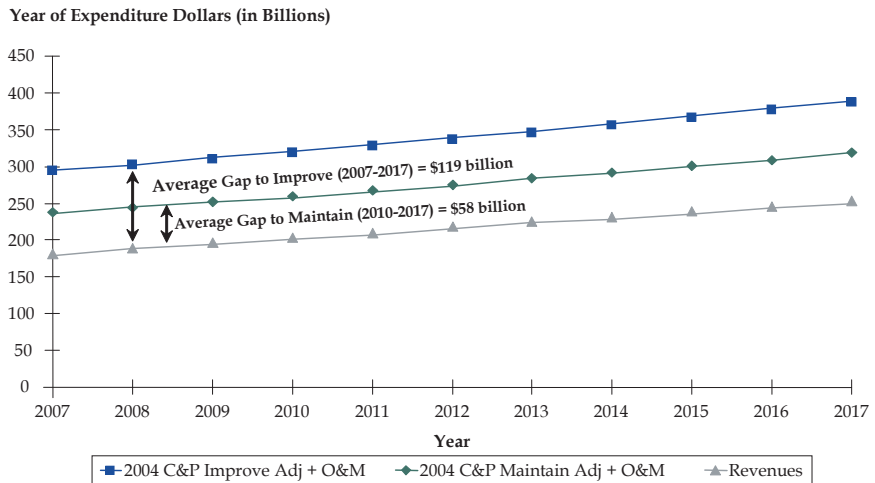
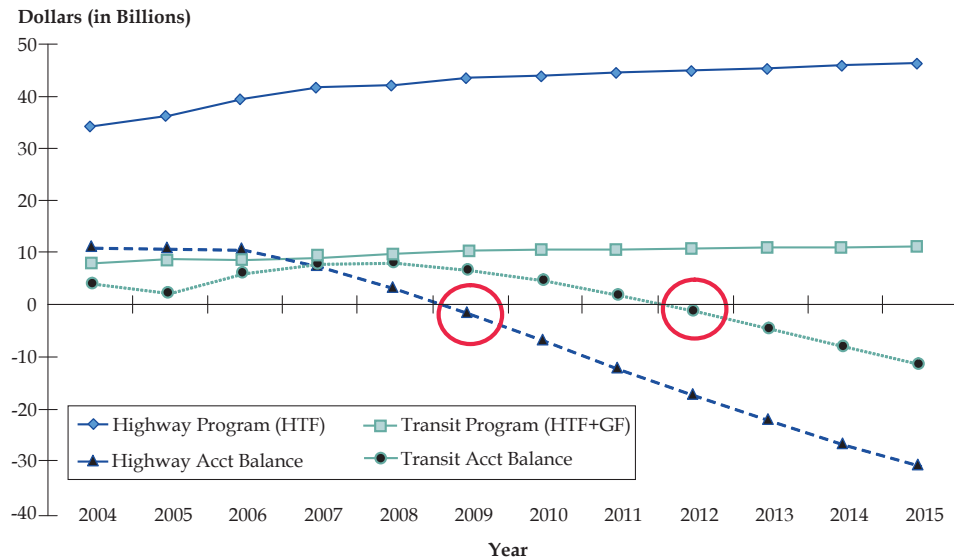


Figure 2. Estimated Highway and Transit Program Levels and HTF Account Balances Through 2015^a



^a Based on 2007 Treasury Mid Session Review revenue estimates; spending assumption 2010-2015 based on current services baseline for discretionary outlays at 1.15% growth per year.

source for transit investments. Specialized taxes accounted for 22.5 percent of transit funding in 1993, increasing to 30.1 percent by 2004.

II. Funding Gap Including Highway Trust Fund Solvency

The recently published National Cooperative Highway Research Program project (NCHRP) 20-24(49) – *Future Financing Options to Meet Highway and Transit Needs*, conducted by the author of this paper, estimates an average annual gap to “maintain” the nation’s highway and transit systems of over \$50 billion and an average annual gap to “improve” of over \$100 billion as shown in Figure 1. These estimates build upon the U.S. DOT 2004 Conditions and Performance (C&P) Report to Congress as noted below.²

Highway Trust Fund Shortfall

Congress has periodically increased Federal motor fuel taxes to keep pace with the nation’s transportation needs, but the last increase of 4.3 cents per gallon was in 1993. Federal motor fuel taxes have lost about one-third of their purchasing power to inflation since then. SAFETEA-LU did not provide for an increase in motor fuel taxes. It achieved temporarily higher funding levels by spending down the accrued balances in the trust fund accounts. Based on current Federal budget projections, the HTF Highway Account will have insufficient balances by 2009 to sustain the authorized program level as shown in Figure 2. The

2) Needs for the NCHRP study are calculated by adding noncapital highway and transit operations, maintenance, and administration costs (O&M) to capital investment requirements for the system as reported in the 2004 U.S. DOT Conditions and Performance Report to Congress (C&P) and adjusting for inflation of costs to the current year (including the increasing cost of construction as represented by the BLS Highway Producer Price Index, which has recently been increasing more rapidly than consumer prices).

shortfall problem accelerates after 2009 assuming that at least modestly growing program levels are desired in the next authorization period to meet growing needs. Figure 2 is based on 2007 Treasury Mid-Session Review revenue estimates; just released Treasury revenue estimates for the 2008 Budget show little change from Mid-Session but some accounting changes apparently reduce the level of the shortfall in 2009.

III. Current and emerging funding options available to Federal, state, and local governments to help close the funding gap.

Table 2 provides a comprehensive listing of specific revenue measures being used or considered around the country based on the NCHRP review; their potential use for highway and transit funding, both for preservation and new capacity; their likely use as program-wide and/or project-specific tools; their potential yield in qualitative terms (high, medium, low), and a listing of the locations where these measures already are known to be used.³ A critical review of the current and emerging options suggests that:

- Fuel and vehicle taxes provide all of the revenues going into the Highway Trust Fund (HTF) and have consistently provided about 75 percent of current state highway revenues over the last 25 years. Assuring that they keep up with needs, including the inflation of costs, must be a centerpiece of any short-term effort to close the funding gap. Adopting multiple fuel-oriented taxes (e.g., gallonage, sales taxes, and/or petroleum business or franchise taxes) has proven successful in several states and has future potential. Vehicle registration

3) Revenue evaluation criteria utilized in the NCHRP 20-24(49) revenue study included: Equity, Economic Efficiency, Yield, Cost/Administrative Feasibility, Technical Feasibility, and Political Acceptability.

Table 2. Candidate Revenue Sources

Specific Revenue Tool	Modes				Scope		Yield	Locations Used
	Highway/ Bridge		Transit		Program	Project	Potential ^a Yield	
	Preservation, Maintenance	New Capacity	Operations, Maintenance	Capital				
Fuel Taxes								
Motor fuel excise (per gallon) tax	●	●		●	●		H	All states, Federal
Indexing of the motor fuel tax (can be indexed to inflation or to other factors)	●	●		●	●		H	FL, IA, KY, ME, NE, NC, PA, WV
Sales tax on motor fuel ^d	●	●		●	●		H	CA, GA, HI, IL, IN, MI, NY
Petroleum franchise or business taxes	●	●		●	●		H	NY, PA
Vehicle Registration and Related Fees								
Vehicle registration and license fees	●	●			●		H	All states
Vehicle personal property taxes	●	●			●		M	CA, KS, VA
Excise tax on vehicle sales dedicated to transportation	●	●			●		H	CT, IA, KS, MD, MI, MN, MO, NC, NE, OK, SD, VA; Federal for heavy trucks
Tolling, Pricing, and Other User Fees								
Tolling new roads and bridges		●	●	●		●	M	About half of states (e.g., TX, FL, VA)
Tolling existing roads	●	●	●	●		●	L	VA proposed, others considering
HOT lanes, express toll lanes, truck toll lanes		●	●	●		●	M	CA, CO, GA, MN, TX
VMT fees	●	●	●	●	●		H	OR testing; recommended by 15 state-pooled fund study
Transit fees (fares, park-and-ride fees, other)			●		●		H	All transit agencies
Container fees, customs duties, etc.		●			●	●	M	CA
Beneficiary Charges and Local Option								
Dedicated property taxes	●	●	●	●	●		H	Many local governments
Beneficiary charges/value capture (impact fees, tax increment financing, mortgage recording fees, lease fees, etc.)		●		●		●	L	Many states and localities (e.g., CA, FL, OR, NY)
Permitting local option taxes for highway improvements								
Local option vehicle or registration fees	●	●			●	●	M	AK, CA, CT ^b , CO, HI, ID, IN, MS ^b , MO, NE, NV, NH, NY, OH, SC, SD, TN ^b , TX, VA ^b , WA, WI
Local option sales taxes	●	●			●	●	H	AL, AZ, AR, CA, CO, FL, GA, IA, KS, LA, MN, MO, NE, NV, NM, NY ^b , OH, OK, SC, TN, UT, WY
Local option motor fuel taxes	●	●			●	●	M	AL, AK ^b , FL, HI, IL, MS, NV, OR, VA, WA
Permitting local option taxes for transit								
Local option sales taxes			●	●	●	●	H	AL, AZ, CA, CO, FL, GA, IL, LA, MO, NV, NM, NY, NC, OH, OK, TX, UT, WA
Local option income or payroll tax			●	●	●	●	M	IN, KY, OH, OR, WA
Other Dedicated Taxes								
Dedicate portion of state sales tax	●	●	●	●	●		H	AZ, CA, IN, KS, MA, MS, NY, PA, UT, VA
Miscellaneous transit taxes (lottery, cigarette, room tax, rental car fees, etc.)			●	●	●	●	L	Various states and localities
General Revenue Sources								
General Revenue ^c	●	●	●	●			H	Most states and localities

^a Potential Yield; H= High, M= Medium, L= Low.

^b Revenues go into General Fund but can be earmarked or used for transportation.

^c For purposes of this report, the leveraging of tax subsidies through tax credit bonds and investment tax credits is treated effectively as producing revenue from general fund sources for transportation.

^d In some states, revenues from sales taxes on motor fuel are not dedicated or only partially dedicated to fund transportation needs.

fees play an important second tier role in most states and will continue to be an important revenue source for the foreseeable future. Several states have found that dedication of motor vehicle sales taxes for transportation purposes can be an important additional tier of vehicle fees that are inflation responsive.

- Tolling, especially in the most congested urban corridors, is becoming an increasingly important capacity expansion tool. Although tolling currently is only about five percent of all highway revenues nationally (or about 9 percent of state highway revenue), SAFETEA-LU significantly expanded the authority for states to advance toll and value pricing projects; many more states and local authorities are considering tolling options for capacity expansion, and pricing is emerging as an important congestion management tool so we could see modest increases in the overall share of total revenues from toll and pricing in the decade or so.
- Specialized/dedicated state and local taxes such as sales taxes and beneficiary fees have proven very effective for state and local government use for both highway and transit programs and should be considered more widely. State and local sales tax referenda have been particularly successful for transportation purposes in recent years. More than 200 special transportation referenda have been considered by voters in the last five years with about a 65 percent success rate; a remarkably high success rate. Beneficiary charges are more of a 'niche' tool, particularly for faster growing localities, and can be an important part of a local package of strategies. Transit also has utilized an array of other dedicated fees such as rental car fees, mortgage or real estate transfer fees, and lottery revenues.
- State and local governments continue to rely on general fund appropriations to support surface transportation needs. Local governments particularly rely on general funds to support their highway expenditures, with about 46 percent of local highway revenue coming from that source in 2004. Competition with other program areas such as health care and education may limit expansion opportunities from general sources.
- The use of existing and emerging finance tools and public private partnerships (PPP) can play an important role in raising additional investment capital and advancing project delivery. These tools normally do not represent new resources per se, but rather, can be used to leverage the revenue mechanisms listed in Table 3 (right).

Table 3 Description of National Gap Closing Scenarios

Scenario 1 - Aggressive
<p>This scenario chooses all actions from Appendix A (except Federal vehicle light duty sales tax) and applies them at their most aggressive levels as estimated in Appendix A:</p> <ul style="list-style-type: none"> • Federal fuel tax increase of 10 cents plus indexing; • HTF interest and exemption treatment and HVUT indexing retroactively • All other Federal revenue options in Appendix A • State fuel tax increases averaging five cents with indexing; • State sales taxes on fuel, vehicles, and general one-half cent sales statewide; • Increase tolling and pricing; and • Local option taxes, beneficiary charges, transit fees, etc.
Scenario 2 - Less Aggressive
<p>This scenario chooses the following actions from Appendix A at their less aggressive rates where more than one rate is shown:</p> <ul style="list-style-type: none"> • Federal fuel tax increase of five cents plus indexing; • HTF interest and exemption treatment and HVUT indexing from 2010 • Other Federal revenue options in Appendix A at their less aggressive rates • State sales tax on fuel, motor vehicles, and general one-half cent sales tax; • Increased tolling and pricing; and • Local option taxes, beneficiary charges, transit fees, etc.

Figure 3. Annual Gap Closing Potential of Revenue Scenarios

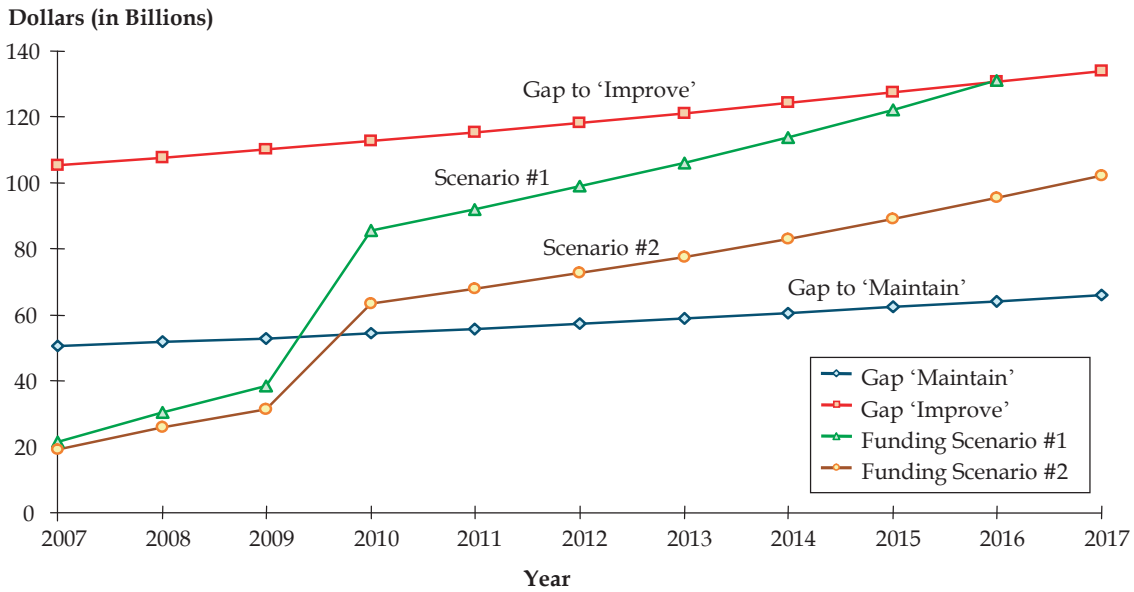
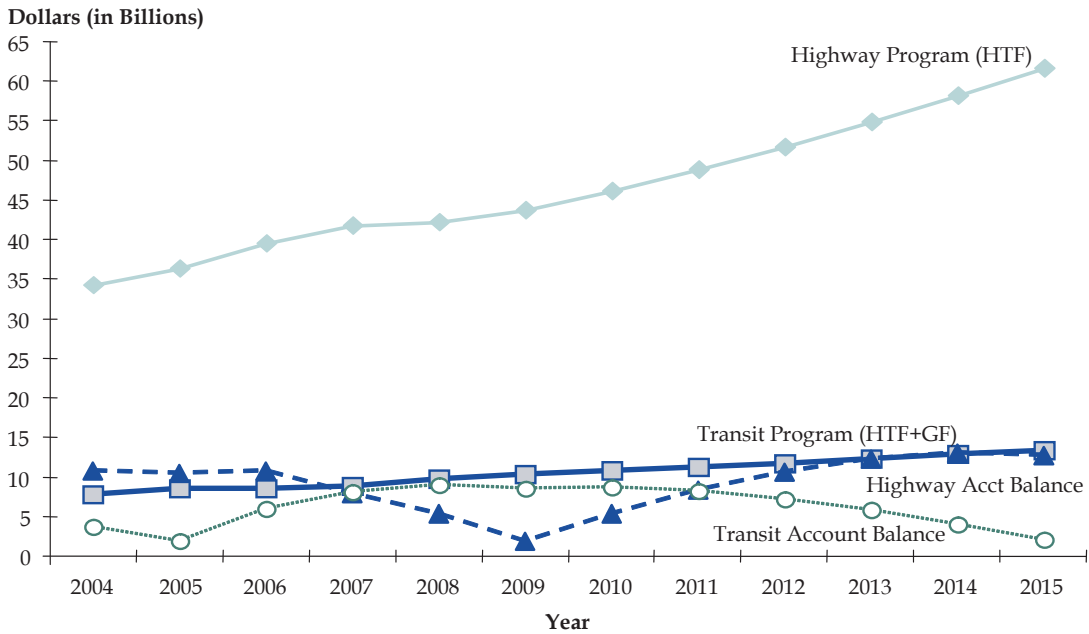


Figure 4. Illustrative HTF Revenue Enhancement Scenario and Index for Inflation
 Eliminate HTF Exemptions and Recapture Interest Starting in 2008; Enact 5 Cent Fuel Tax Increase in 2010 and Index Forward



Gap Closing Potential of Packages of Funding Measures

The annual and cumulative national gap-closing potential of two illustrative funding packages were tested in the recent NCHRP study as described in Table 3 above.

Their gap closing potential of the scenario packages is illustrated in Figure 3. The gap closing potential of individual measures is detailed in Appendix A.

Scenario 1, a full aggressive package of revenue enhancement strategies at all levels of government, would:

- Fully close both the national annual gap to maintain by 2017 and the cumulative gap to maintain through 2017; and
- Close the national annual gap to improve by 2016 and the cumulative gap to improve through 2017 by almost 75 percent.

Scenario 2, a less aggressive package of revenue enhancement strategies would:

- Fully close both the national annual gap to maintain by 2017 and the cumulative gap to maintain through 2017; and
- Close the national annual gap to improve by 76 percent by 2017 and the cumulative gap to improve through 2017 by about 56 percent.

In addition to these gap closing scenarios which apply to all levels of government, a specific Federal Highway Trust Fund enhancement strategy was tested as illustrated in Figure 4. This illustrative Federal revenue scenario consists of the following measures:

1. Eliminate the cost to the HTF of certain Federal excise exemptions beginning in 2008;
2. Credit interest earnings on HTF balances to the HTF beginning in 2008;
3. Increase the Federal fuels taxes by five cents per gallon beginning in 2010 (this would effectively recapture half of the purchasing power lost due to inflation since the last fuels tax increases in 1993); and
4. Index the Federal fuels taxes to the Consumer Price Index (CPI) beginning in 2011.

Implementation of the first two measures beginning in 2008 would generate an estimated \$2.6 billion for the Highway Account and \$3.6 billion for the HTF overall during the final two years of SAFETEA-LU – revenue likely sufficient to avoid the impending solvency crisis and enable full funding of the authorized amounts for highway and safety programs through 2009. Implementation of the other two measures would put Federal spending on a path supporting highway and transit investments that would fully meet the levels required to maintain system condition and performance. In aggregate, the package of revenue measures in this scenario would generate about \$125 billion of additional revenue for highway and transit system investments through 2017.

Implementation of all four measures contained in this scenario would enable significantly higher funding levels in the next authorization cycle. It is estimated that the combined Federal highway and transit funding could increase by about 39 percent from the SAFETEA-LU authorization level of nearly \$54 billion in 2009 to about \$75 billion by 2015.

IV. Making the Longer-Term Transition

Although much of the paper focuses on shorter-term actions that need to be taken to enhance surface transportation funding it is imperative that we begin planning the transition from the current transportation revenue system to modified or new transportation revenue systems for the future. Many have raised concern about the future viability of fuel taxes given the potential shift to alternative fuels and propulsion systems, including the possibility of higher prices speeding this trend. The recent report of the Transportation Research Board Committee for the Study of the Long-Term Viability of Fuel Taxes for Transportation Finance concluded that such erosion of fuel tax revenues is not expected to be a significant concern in the next 10 to 15 years and that fuel price increases alone (without additional regulation) probably will stimulate only a small improvement in fuel economy in this period.⁴ However, there is clearly longer-term vulnerability of the current motor fuel based revenue system. We need to begin planning the transition now. Burning of more and more fossil fuel to sustain our highway and transit revenue systems into the future puts transportation financing on the wrong side of energy and environmental policy.

One path of phasing and sequencing of actions needed to sustain short-term investment and transition to long-term revenue sources is summarized in Figure 5, based on recommendations originally presented in the National Chamber Foundation Finance study conducted by the author of this paper.⁵

For states and local governments, transition to new charging systems will inevitably be piecemeal, based on individual needs and political feasibility. The next 10 to 15 years are likely to be a period of significant experimentation with tolling, pricing, and VMT-based road charging systems driven by a number of different factors, including revenue needs as well as demand management. With Federal support for VMT pilots and promulgation of architecture and standards for the technology in the short-term, we could see fairly wide implementation of such systems in the period past 2015 as illustrated in Figure 5. Eventually, the Federal government may choose to piggyback on state VMT systems as is the case with fuel taxes now.

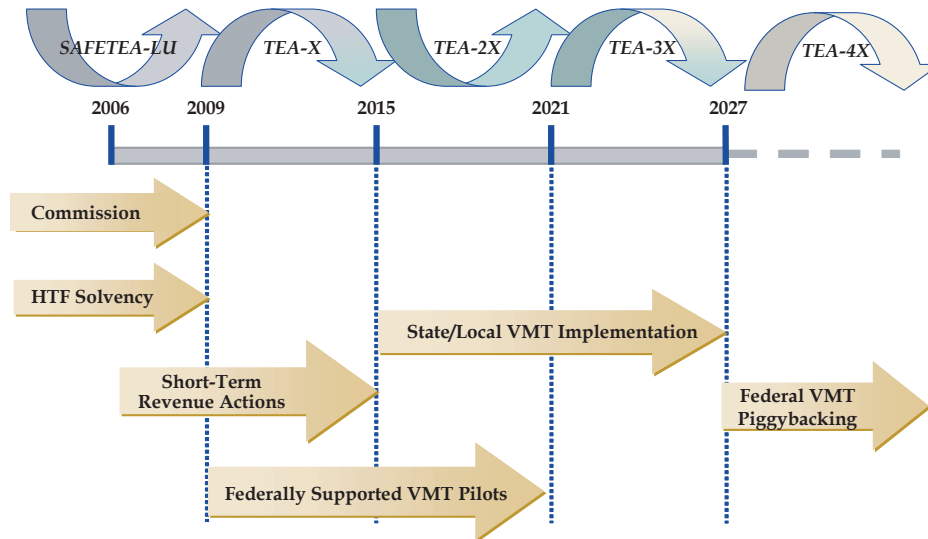
The current motor fuel tax system has been in place for more than 60 years. It will take time and a broad public education effort to develop and explain the need for a new or modified transportation revenue system and to gain political and public acceptance.

The TRB policy report on alternatives for transportation funding suggests that a clear policy rationale may be the most important factor in implementing new or modi-

⁴ TRB Special Report 285, *The Fuel Tax and Alternatives for Transportation Funding*, 2005.

⁵ U.S. Chamber Foundation; *Future Highway and Public Transportation Financing-Phase II*, by Cambridge Systematics, 2005

Figure 5. Timeline for Transition



fied revenue mechanisms.⁶ The transition will inevitably involve policy discussion of the future Federal role in highway and transit programs, a topic being considered by the National Surface Transportation Policy and Revenue Study Commission authorized in SAFETEA-LU.

V. Overall Conclusions

- Motor fuel and vehicle taxes and fees are the mainstay of Federal and state highway programs, are a major contributor to transit funding, and will continue those roles for the horizon of this study. A major challenge will be to keep them responsive to growing needs, including the impacts of cost inflation.
- The Federal Highway Trust Fund (HTF) faces a very short-term funding challenge before the end of SAFETEA-LU and an even larger challenge in the years beyond. A specific illustrative scenario that would solve both this short-term solvency crisis as well as provide growing funding through the next authorization cycle has been demonstrated.
- State and local governments continue to innovate with new or expanded sources. The largest growth in revenue shares in recent years, particularly for transit, has come from specialized taxes such as sales taxes. Impact fees and other beneficiary charges play a 'niche' but expanding role. Tolling and pricing innovations offer the potential to expand state and local revenues and perhaps more importantly provide incentives for additional leveraging and fostering of public private partnerships (PPP) that can play an important role in raising additional private investment capital and advancing project delivery.
- Growing freight oriented bottlenecks suggest the need for targeted intermodal freight sources of revenue. Container fees, Waybill fees, Customs duties, and tax credit approaches are all being actively discussed.
- The key issue is how to successfully implement these strategies at all levels of government over the next decade and beyond to achieve the investments that are needed in our surface transportation systems. The most successful programs to date have blended a menu of funding and financing tools that complement and, in some cases leverage, the traditional sources. Review of successful implementation at all levels of government in the NCHRP study suggests that most, if not all of the following steps, will be needed for successful implementation of major revenue-raising initiatives:
 1. Develop a consensus on the scope of current and future transportation investment needs and the importance of addressing them;
 2. Develop a specific plan and program of investments for which additional funding is needed and demonstrate the benefits expected from the proposed investments;
 3. Establish clear roles, responsibilities and procedures for executing the plan and proposed improvements;
 4. Describe proposed revenue sources in detail and provide clear rationales for their use;
 5. Design and carry out a public education and advocacy campaign;
 6. Develop sustained leadership and support for the initiative;
 7. Lay out a clear timetable for action.

6) The Fuel Tax and Alternatives for Transportation Funding, Appendix A; TRB Special Report 285, January 2006.

- Longer-term, fuel taxes will be vulnerable to fuel efficiency improvements and penetration of alternative fuels and propulsion systems for motor vehicles. Further, continuing reliance on more use of fossil fuel will likely run counter to long-term environmental and energy needs and policies. Several recent national policy studies have recommended shifting to nonfuel-based revenue sources such as VMT fees over the next 15 to 20 years. States such as Oregon have begun tests of VMT approaches based on emerging technology. In addition to expanding the Value Pricing Program, SAFETEA-LU provided funds for testing of VMT fees through a demonstration to be led by the University of Iowa. VMT fees have many advantages, including the ability to charge directly by use by time of day, by roadway, by geographic area, by weight of the vehicle, by environmental friendliness of the vehicle, etc. Current innovations in tolling and pricing in the U. S. and abroad can help lead the way to this transition.

Appendix A

Table A.1 Potential Contribution of Short-Term Funding Mechanisms to Federal, State, and Local Highway and Transit Needs
Year of Expenditure Dollars

Short-Term Funding Mechanisms	Revenue Generation 2010	Revenue Generation 2017	Average Annual Revenue 2010 to 2017	Revenue Generation Cumulative 2007 to 2017	Comments
Federal Revenue Options to Increase Highway Trust Fund Revenues					
Index Federal fuel taxes retroactive to 1993 to capture full loss due to inflation	\$19.4 billion	\$31.7 billion	\$25.3 billion	\$202.6 billion	Would result in 10 cent fuel tax increase in 2010 with indexing to CPI thereafter.
Capture half of the loss due to inflation since 1993	\$9.6 billion	\$19 billion	\$14.1 billion	\$113 billion	Would result in five cent fuel tax increase in 2010 with indexing to CPI thereafter.
Index Federal fuel taxes starting in 2010	\$0.8 billion	\$7.6 billion	\$4.0 billion	\$32.3 billion	Index fuel tax rates to CPI starting in 2010; first year of next reauthorization cycle.
Implement motor fuel sales taxes at the Federal level	\$10.8 billion	\$14.0 billion	\$12.3 billion	\$98.4 billion	Assume three percent sales tax on motor fuels, starting in 2010.
Reinstitute Federal light duty new vehicle sales tax at rate of 3 percent	\$15 billion	\$20.4 billion	\$17.6 billion	\$141 billion	Seven percent tax phased out in 1971. Assume tax is reinstated at three percent in 2010 and deposited to HTF.
Index Heavy Vehicle Use Tax (HVUT) retroactive to 1997	\$2.1 billion	\$3.7 billion	\$2.9 billion	\$21.3 billion	Has been fixed at maximum of \$550 since 1984; assume indexing retroactive to 1997 to capture one-half loss due to inflation.
Index HVUT starting in 2010	\$30 million	\$374.3 million	\$200 million	\$1.5 billion	Assume indexing to CPI implemented in 2010.
Eliminate exemptions to HTF starting in 2008	\$1.2 billion	\$1.3 billion	\$1.2 billion	\$12.3 billion	As proposed in President's 2006 budget; shift exemptions to general fund.
Recapture interest on HTF balances starting in 2008	\$0.5 billion	\$0.5 billion	\$0.5 billion	\$5.0 billion	Depends on HTF balances; estimates assume minimal balances through next reauthorization cycle.

Appendix A

Table A.1 Potential Contribution of Short-Term Funding Mechanisms to Federal, State, and Local Highway and Transit Needs
Year of Expenditure Dollars
(continued)

Short-Term Funding Mechanisms	Revenue Generation 2010	Revenue Generation 2017	Average Annual Revenue 2010 to 2017	Revenue Generation Cumulative 2007 to 2017	Comments
Other Federal Revenue Options					
Authorize tax credit bonds (modeled after the Senate-proposed "Build America Bonds" – assumes \$5 billion in net proceeds per year)	\$5 billion; General Fund supported	\$5 billion	\$5 billion	\$55 billion	Debt-oriented financing technique that leverages a Federal tax subsidy to generate new transportation funding.
Utilize 5 to 10 percent of current Customs duties for port and intermodal improvements	\$1.7 billion at 5 percent \$3.3 billion at 10 percent	\$2.2 billion at 5 percent \$4.5 billion at 10 percent	\$1.9 billion at 5 percent \$3.9 billion at 10 percent	\$20.0 billion at 5 percent \$40.1 billion at 10 percent	These funds would be set aside for port and intermodal purposes; 30 percent assumed to offset highway needs, such as intermodal connectors.
Authorize freight/intermodal investment tax credits (assumes \$500 million annual limit on monetization of 20-year tax credit streams)	\$1.2 billion	\$1.2 billion	\$1.2 billion	\$13.2 billion	Modeled after the Graves proposal. Only 15 percent of ITCs are estimated to fund highway or transit-related needs such as highway-rail grade crossings.
Container fees	\$1.7 billion	\$2.7 billion	\$2.2 billion	\$17.5 billion	Start in 2010; applied on all import and export containers
State Revenue Options					
Index state motor fuel taxes	\$1.4 billion	\$6.5 billion	\$3.8 billion	\$31.9 billion	If all states indexed fuel taxes by 2010.
Increase state motor fuel taxes to catch up for inflation losses since 2000	\$6.6 billion	\$8.6 billion	\$7.6 billion	\$70.0 billion	If all states were to catch up for inflation losses by 2010; results in average 5.2 cent increase.
Implement motor fuel sales taxes	\$8.9 billion	\$11.6 billion	\$10.1 billion	\$94.3 billion	Three percent assumed dedicated to transportation.
Raise motor vehicle registration fees to keep up with inflation	\$1.8 billion	\$6.4 billion	\$4.0 billion	\$33.4 billion	If all states were to raise in concert with inflation starting in 2007.
Use vehicle sales tax for transportation	\$6.2 billion	\$8.4 billion	\$7.2 billion	\$66.6 billion	If all states who have sales tax dedicate at least three percent of vehicle sales tax to transportation.
Portion of state sales tax dedicated to transportation	\$9.0 billion	\$12 billion	\$10.5 billion	\$108.8 billion	Assume one-half percent dedication.
Increase tolling/pricing revenues (above current 5 percent per year increase)	\$0.2 billion	\$2.4 billion	\$1.1 billion	\$8.9 billion	Estimate based on aggressive use of tolling and pricing opportunities in SAFETEA-LU.
VMT fees (future); transition from short-term toll/pricing innovation					High potential but widespread deployment assumed after 2015.
Local Revenue Options					
Increased use of specialized dedicated local taxes, e.g., local option taxes, impact fees, miscellaneous transit fees	\$5.3 billion	\$17.6 billion	\$10.8 billion	\$96.2 billion	Assume more aggressive growth rate of last 10 years continues.

Legislative Considerations for Long Term Policy Change

Mortimer L. Downey III

Introduction

The goal of the Pocantico roundtable is to develop a strategy for national surface transportation policy in America that can respond effectively to the long term trends. The development of this country over the next several decades will be shaped by rapid population growth as America moves toward the 400 million mark, by the emergence of “megaregions” as our growing population concentrates in areas of economic relevance, and by the rise in international trade and shift in goods movement patterns as the world economy integrates more fully and America relies to an increasing degree on imported goods. At the same time, national and world attention must be placed on climate change, reducing our carbon footprint to minimize the impact of development on our fragile global eco-systems.

The way our transportation systems develop must be a key element in arriving at the outcomes we desire. Transportation investment could help shape the new America or it could continue to contribute to a pattern of development and energy use that exacerbates our problems. While transportation development is in some ways a response to consumer demand, it is also a response to the governmental policies that provide the framework for transportation investment.

Those governmental policies have traditionally been expressed in national transportation legislation. While implemented through a variety of governmental institutions and levels, they are responsive to the vision and the policy direction embodied in national legislation. If we hope to change transportation policy and programs to move in a supportive direction, we must make appropriate change in federal policy, and the first opportunity to express such policy change will come with the enactment of a new surface transportation program in 2008 or soon thereafter. The challenge is not only to identify what kind of policy we would like to see but to create the climate in which such change becomes possible.

Historical Perspective

Federal surface transportation policy is embedded into legislation on a cyclical basis, with consideration of new bills occurring every few years. This cycle used to be two years, and then lengthened to four or six year intervals, responding to the need for greater funding predictability in order to support state and local transportation plans and investments in multi-year capital projects. Thus, the opportunities for change in policy are infrequent, and the differences from bill to bill are typically at the margins. In particular, the question of appropriate funding and tax levels is taken up very infrequently. Nevertheless, there are long term trends and cycles that we see by looking back over the history, and it is just such a long term change that we need to support the development we seek.

Looking back over more than a century of federal transportation policy change, one can see three past waves of legislation, each with its own vision, its own outcomes and its own set of policies and institutions. Each wave plays out over a period of decades, with evolutionary change followed by a period of implementation and then evaluation of results and resetting of direction. Changing the course

of transportation development will, in all likelihood, mean the encouragement of a fourth wave with its own vision and implementation strategies. If it is true that changing the direction of this massive program always takes many years, then all the more reason to begin now if we want to shape a better outcome for the mid-century.

The Era of “Good Roads”

While national support for transportation investment goes back to the beginnings of the republic and the era when Hamilton’s policies of internal improvement spurred public and private investments like the National Road or the Erie Canal, the roots of a surface transportation program (more broad than just project investments) go back to the end of the 19th century. The Good Roads program, begun by bicyclists even before the widespread adoption of automobiles, led to the establishment of the Office of Highway Inquiry under General Roy Stone in the early 1890s, with its program of research and demonstration. More than 20 years elapsed before a full-fledged program of federal investment was enacted in 1916 and codified in the Federal Highway Act of 1921. Parenthetically, if the next reauthorization bill follows the recent pattern of six year funding, its final year will mark the completion of a century of federal investment in our transportation system.

Under that 1916 legislation and its many successors, the federal government provided limited assistance to states for the construction of an initial road network to provide for local mobility. The central vision could be expressed as “get the farmers out of the mud,” with the product essentially the first generation of paved roads. The federal role was a constrained one, with the states evolving into the primary role of planning, designing and constructing the network. This vision and program continued with only limited change well into the 1950s. Investment levels rose and fell in periods such as wars and depression but the basic nature of the program remained steady.

The Era of Interstate Construction

As early as the mid-1930s, there was consideration of a new and more active federal role in surface transportation, or more accurately put, highway construction. Sketches and studies for a national network were put on paper during the Great Depression, with encouragement from President Franklin D. Roosevelt. But, as in the case of the Good Roads era, two decades intervened before the policy thinking emerged as legislation and program implementation. The enactment of the Federal Aid Highway Act of 1956 set in motion the construction of the Interstate and Defense Highway System, with its vision of an interconnected America—“coast to coast without a red light.”

Having defined both the vision and an implementing mechanism through a Highway Trust Fund dedicated to the task at hand, the country embarked on building that national network, one which was planned to take 20 years to complete, although it ultimately required 40. In this period, the Bureau of Public Roads, later renamed the Federal Highway Administration, emerged as the key agency, setting standards, coordinating routings and overseeing the quality of construction. With the ultimate power inherent

in a “cost-to-complete” funding mechanism, the BPR/FHWA was central to transportation policy and development in an era that ran into the early 1990s.

The Post-Interstate or “SAFE-T” Era

Just as the thinking about the Interstate Era began well before a new vision emerged, policy about a post-Interstate era evolved over a few decades. Concerns about the impacts of highway investment were expressed in the early 1960s and federal policy moved towards a multi-modal approach. Congress created a parallel program for mass transit in the mid-60s, one which has grown into today’s Federal Transit Administration. That program was rooted in federal concern for housing and urban development and the implications of that fact continue to drive some of the complexity of federal legislation.

In the late 1970s, the Administration and the Congress began the practice of more comprehensive surface transportation bills with the enactment of the 1978 Surface Transportation Authorization Act. Committee jurisdiction reform in the House of Representatives made this combined approach possible for the first time. Going forward from that point, interrupted by a period of budget battles during the Reagan Administration, the new era began to take shape with the enactment of ISTEA—the 1991 Intermodal Surface Transportation Efficiency Act.

The new vision embodied in ISTEA was carried forward in its two successors, TEA-21 and SAFETEA-LU, enacted in 1998 and 2005 respectively. Its hallmarks include **Secure and Flexible** funding, with a strong degree of **Environmentally Targeted** investment, hence the descriptor of this as the SAFE-T era. Provisions such as the TEA-21 budget firewalls gave greater assurance that funds collected for transportation would be spent. Flexibility in funding, which had begun as early as 1970, was greatly enhanced in this era. Provisions such as Congestion Management and Air Quality (CMAQ) funding program and the conformity requirements that knitted transportation and clear air programs together provided the idea of environmental targeting.

In terms of institutions, the era saw the development of greater powers and responsibilities for Metropolitan Planning Organizations (MPOs), although within a framework that continued a strong state role and allowed

for wide variation in the form of the MPOs. Federal policy was oriented much more towards enabling local determinations within a framework of process rules, in contrast to the strong vision of the Interstate Era.

On the negative side, this era was also marked by severe disputes over funding allocation, almost to the point that could threaten a future federal role. Concern over respective shares of gasoline tax receipts drove towards ever more complex mechanisms for funding distribution, coupled with a drive towards “earmarking” of specific local projects that achieved epidemic proportions in the 2005 legislation.

The Fourth Wave

If we seek different outcomes for future transportation investment, it is important to design a policy framework that will encourage the directions we seek. An America of megaregions doesn’t match either the state or the metropolitan boundaries that define current program implementation. A future that is increasingly multi-modal, both for travel within and between these regions, will need even greater flexibility in supporting investments of all types. An economy that is dependent on international trade as well as on continent-wide distribution of goods must design and implement freight systems at that scale. And such systems must take into account the mixed public-private nature of freight transportation.

Financial support for transportation systems into the future is also becoming more complex. While no one expects an overnight collapse of our current gasoline tax supported system, the strains are evident. Marginal changes in revenues over the SAFETEA-LU period have put the Highway Trust Fund’s highway account in a position of being overdrawn before the end of 2009. Longer term, the growth of alternative fuels and the continued positive trend toward fuel economy act as a restraint on revenue growth. A trend towards public-private partnerships with equity shares in our infrastructure suggests the promise of new resources, but requires considerable institutional change to become a reliable part of our investment strategy.

Figure 1. Evolution of National Transportation Policy
1800s - 2000s

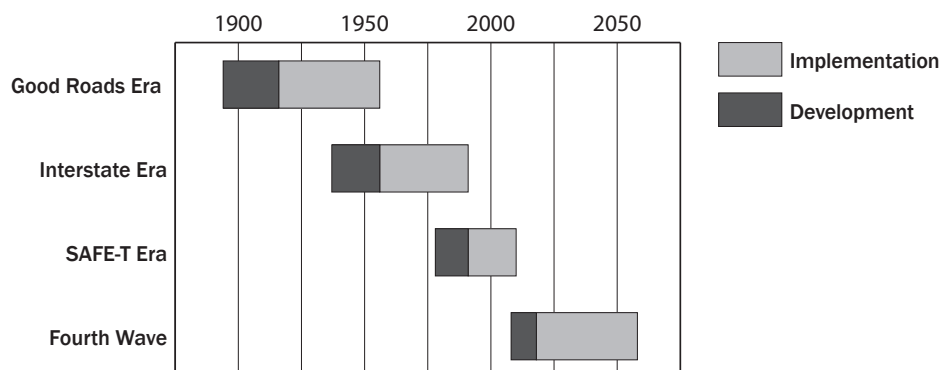


Figure 2. Earmarks in Highway Reauthorization Bills 1982-2005

Year of Bill	Earmarks
1982	10
1987	152
1991	538
1998	1,850
2005	6,371

Source: Heritage Foundation Background #1924

Prospects for Change

Recognizing the magnitude of change needed to bring about a redirection of surface transportation legislation and policy, what are the prospects and strategies for effecting such change, beginning with the consideration of “T-4” in 2009? History tells us that such major change in direction will take time to implement, and must be accompanied by a vision of the outcomes it seeks to accomplish. At the same time, the enactment of new legislation is in many ways an incremental process. Each new bill builds on the successes and failures of its predecessors, and must be managed within the political context and institutions of the times. This will be the case in the upcoming cycle. Enactment of a successor bill to SAFETEA-LU may well be on a “forced-march” scenario. The current bill was enacted to cover the period ending September 30, 2009, although it is uncertain whether there will be sufficient revenues in place to carry through that date. If nothing is done to fill that revenue gap, the need for legislation, perhaps of a stopgap nature, becomes even more urgent. While some debate and consideration of a new bill will take place during 2008, possibly drawing on the report and recommendations of the National Surface Transportation Policy and Revenue Study Commission created by SAFETEA-LU, the realistic expectation is that actual legislation will fall to the President and Congress who will be elected in November 2008 to take office in January 2009. We cannot predict who will hold those offices, except to note that the new President will be taking national office for the first time, since neither the incumbent President nor Vice President will be seeking reelection. While Democrats now control both Houses of Congress, their narrow margins in one or both Houses could be overturned. While the need for reauthorization will be there, it may be overshadowed by the work underway to organize and staff both branches. If new ideas and issues are to be inserted into the reauthorization debate, it is important that they be surfaced now, rather than waiting until 2009.

Programmatic Inertia

Bringing about change will require that the vision for change overwhelm the natural tendency to model a new piece of legislation on its predecessors. In the case of surface transportation, this has meant a renewed effort to rebalance revenues and expenditures to further close the gap between “donor” and “donee” states—an exercise that is both difficult and time-consuming, even as it stifles the potential for new investments or initiatives at a national scale.

Inertia has also meant that more and more attention has been placed on so-called “earmarks,” the specific named projects whose numbers have grown exponentially in recent legislation. While once prohibited by the rules of the House of Representatives as constituting specific items on a general authorization bill, they had come by SAFETEA-LU to be a dominant component of the legislative exercise, almost driving out consideration of programs and policies while lobbyists and legislators sorted out the pork. The table below shows the growth in highway project earmarks alone; recognizing that legislation also carries specific items for transit, railroad corridors, research programs and other categories.

Potentially, the negative public reaction to earmarks of all kinds that permeated the electoral debate in 2006 may have a tempering effect of this phenomenon, but only time will tell. Leaders of the Congressional committees who need support for their bills have set the pattern in the past that raises expectations of future earmarks, and the very large projects that those leaders include in the bill are masked by the many small projects doled out to the rank-and-file membership.

Programmatic inertia will also be reflected in the positions brought to the debate by interests groups of all types. Those whose current interests are served by the status quo will be reluctant to entertain change. These interests range from the construction interests who understand how they are benefited by current programs, to environmentalists who want to retain current planning and review processes, to state and local agencies who hope to hold their place in the current constellation of programs.

Institutional Inertia

Paralleling the tendency to revisit the same issues that were in past bills is the fact that legislation must be maneuvered through the same institutions that brought us past bills. Within the Administration, the Department of Transportation, sometimes balancing the views of its constituent agencies, carries the primary responsibility for developing and defending legislation. Introducing the broader perspective of national and regional development calls into play the views of many other federal agencies—EPA, Energy, Commerce, Treasury and others—and requires strong coordinating intervention at the level of White House agencies like the OMB, CEQ and various policy councils. Focus on this legislation competes with many other international and domestic priorities.

A similar lack of focus exists within the Congress, particularly in the United States Senate. Committee jurisdictions have a very strong influence on legislative outcomes, yet the jurisdictions are often shrouded in ancient history and past controversies. Successive realignments in the House of Representatives have brought most transportation issues under one roof within the House Committee on Transportation and Infrastructure, although there are still sharp modal boundaries at the subcommittee level. One subcommittee does manage what has become the traditional “surface transportation legislation” that authorizes highway and transit programs, but other key transportation elements, like intercity passenger and freight railroads, aviation and airports, and water transportation are in separate subcommittees and therefore in separate legislative vehicles. If policies for these various modes need to be

optimized to support a vision for regional development, new institutional paradigms will be needed. And if other topics such as energy, climate change or urban development are part of the process, even greater institutional barriers must be overcome. As a case in point, the new Democratic House Speaker, Nancy Pelosi, is finding it difficult to pull together the strands of policy and program involved in climate change into even a special, non-legislating, select committee.

In the United States Senate, the situation is both more complex but potentially more easily resolved. Traditional patterns of jurisdiction keep the modes of transportation and their programs in separate bundles. Highways, waterways and environmental issues are managed within the Senate Committee on Environment and Public Works. Because the transit programs were originally part of the national commitment to housing and urban development, they fall in the jurisdiction of the Senate Banking Committee. And the balance of the transportation modes—railways, aviation and maritime transportation, as well as highway safety—are the province of the Senate Commerce and Transportation Committee. Within both House and Senate, programs once authorized are then funded by, or at least constrained by, the respective Appropriations Committees and their strong Transportation and Urban Development subcommittees, as well as by the tax and trust fund measures overseen by the House Ways and Means and the Senate Finance Committees.

One potential for coordinated action in the Senate rests with the possibility of the entrepreneurial individual Senator or Senators whose interests span across committees. While in the larger House of Representatives, individual members, by rule or custom are limited to a small number of committee assignments, the smaller Senate affords far more opportunity for overlapping memberships with the opportunity to influence issues across boundaries, both in terms of authorizations and appropriations.

Developing an Action Agenda

If the goal is make the national surface transportation investments more relevant to the style of development we hope to see in 21st century America, we need a specific action agenda—elements that could be proposed for inclusion in a 2009 legislative vehicle. Even if these are only interim actions in the evolutionary tradition that has marked prior eras, they can help set the stage for future legislation and programs. Where total reform may not be practical, incremental change in the right direction is a way to change the ultimate course. At least seven areas, as described below, would be priorities for development of a new focus. The extent to which the next bill deals successfully with these issues will determine whether there is hope for a strong federal role in the future.

While overcoming inertia is a difficult challenge, some of the policy debates within and outside the transportation arena may help set the stage. In the coming years, it is likely that the U.S. Government will come to grips with climate change and its implications. At the state and local levels, voters are showing greater frustration with the impact of congestion on their daily lives. Analysts and pundits are pointing to new solutions and new policies, and we are seeing some tentative steps to test out ideas like toll financing or value pricing. Spokesmen for industry are beginning to

ask what government will do to avert the gridlock that will retard economic growth by reversing the decades-long trend towards more efficient freight transport and logistics. The combined impact of these and other concerns could be the springboard for a serious debate about our current transportation policies and institutions and how they can better serve our future needs.

Institutions – First, it is clear that existing institutions and boundaries do not match up to the scale of the regional issues. Just as Metropolitan Planning Organizations, enacted as a requirement of federal funding for plans and programs, have been an imperfect but essential element of the “SAFE-T” era, we need to design a basis for multi state “Megapolitan Planning Organizations” to begin the development of plans and programs that can address 21st century challenges. This suggestion does not imply that our current MPO’s have been fully effective. In fact, we know that they are flawed, but at least some have overcome their constraints and brought a degree of rationality to the debate. If we look to develop institutions of broader geographic and political scope, we need to consider what has and hasn’t worked in our current metropolitan area. A step in this direction, either as a mandate or on a voluntary basis, could begin to develop appropriate relationships. Over the past few years, the lack of such institutions has hindered the development of passenger rail corridors and new interstate highway alignments, and new agencies might be structured along those lines. Existing agencies, such as the long-standing Appalachian Regional Commission or the relatively new Delta Commission could set the pattern. With a flexibility to bring together the levels of government and the agencies that cover areas of economic and social interaction, but without a mandate to become “super-governments,” such institutions well have to have access to or control over funding to make them more than debating clubs or rubberstamp organizations.

Funding Flexibility – Building on the history of the “SAFE-T” era, additional steps in funding flexibility would help build a basis of future investment. The mix of modal investments varies now by state and metropolitan area and is similarly likely to vary in the future megaregions. Now may be the time to incorporate what is now viewed as intercity transportation—Amtrak and buses—more directly into the planning and funding environment so that developing regions are not constrained in their transportation investment choices by rigid modal and programmatic categories.

Earmark Control – Getting serious attention to the issues of the future means that the transportation legislation has to be taken seriously, and the recent explosion of earmarks has contributed to diminishing its stature. When the editorial cartoonists can have the easy target of a “bridge to nowhere,” it is hard to refocus on the broad policy issues. But at the same time, we cannot totally move away from a project focus. There are areas where federal action is needed to authorize specific investments. What we need to create is a process whereby these are rationalized and justified programmatic decisions that are endorsed and given weight by legislative endorsement.

Adequate Resources – Meeting the challenge of future needs will without question strain our resources. A very important challenge for 2009 will be the establishment of realistic funding levels and mechanisms. Funding needs must be addressed not only at the national but at the regional, state and local levels, with the objective of meeting both the needs of maintaining the performance of our existing assets and the opportunities for future investment to support effective and efficient growth. To the extent that future development cuts across traditional jurisdictions and boundaries, this balance of need and resources will become even more difficult. Inclusion of new mechanisms such as public-private partnerships will help with the resource issues, but only if they can operate within the institutional framework. It will be important as well that the recent actions to provide for solid funding guarantees are continued. Major new investments, especially ones that cross boundary lines, need solid assurances of funding availability over a multi-year project development cycle. Annual appropriations review is important for on-going governmental activities, but capital investments need a different form of legislative oversight.

Sustainability – One aspect of the vision for future development will be its contribution to sustainability. A key element in the legislative program for 2009 will be to create means to make this vision an operational reality. One of the success factors for the 1991 ISTEA bill was the linkage it created to Clean Air programs through careful dovetailing of transportation and environmental legislation. Now is the time for a similar effort to tie together our climate change concerns with our transportation plans and developments. Perhaps it is as simple as including greenhouse gases in the equation for consideration of conformity, making the reduction or mitigation of such gases a prime factor in system and project planning. Such a step would bring about far more ingenuity in policy and technology development, including the potential for inclusion of transportation projects and operations in comprehensive “cap and trade” mechanisms.

Goods Movement – Special attention to goods movement will be a necessity for both short and long term transportation progress. As our economy becomes more international in its focus, efficient goods movement is an essential element, but one which is constrained by the geography and politics of the system. We have seen how the key elements of the freight system are constrained by local funding or impact issues, even though they serve the requirements of broad areas of the nations. National intervention may be needed if all regions are to share in the benefits of the developing world economy.

Research and Technology – Finally, we can work towards a much stronger federal commitment to policy and technological research as well as technological development. Managing the investments to support 21st century America calls for innovation in all these realms. Past generation of transportation and development rested on a strong framework of federal support—encouraging new thinking about how we develop and new tools to support that development. The coming shape of regional development, with people interacting across greater distances, may require technologies or services beyond what exists today. Meeting financial

needs and providing direction in sound investment must be based on a sound body of knowledge. Re-establishing a strong federal role in these areas will pay important dividends over the next 50 years and this should be among our top legislative priorities.

Breaking Through

Past waves of transportation legislation have occurred when there was consensus on need and a new vision that met the issues surrounding that need. If we seek to introduce a new set of policies and programs to serve the changes coming to America over the next several decades, it is important that we establish firmly that current policies will not take us where we want to go, that the consequences of moving in such directions are necessary and that new paradigms offer the tools that are needed. That is what brought us from era to era in the past. It is the message we need to bring to the upcoming debate about the future.



Summary of Meeting

Petra Todorovich
Director, America 2050

Evening One

Mark Pisano, Executive Director of the Southern California Association of Governments opened up the Roundtable on the first evening by sharing some of his observations on meeting transportation challenges in the Southern California Megaregion. He observed that his organization's regional scope is at times too small to deal with the other regions that impact the transportation networks of L.A. These include the "inland empire" of Riverside and San Bernadino counties, the rapidly growing warehousing and distribution functions in the Las Vegas region, and the goods movement coming up and over the border from Tijuana and Mexicali, Mexico. He identified a key challenge as building a political structure that allows them to deal with the multiple transportation challenges at this large scale.

He pointed to the need for the federal government to play a convening role in bringing together cities and counties around regional planning issues. He recommended that the federal government exercise its power of "conditionality" by distributing funds only to projects that meet federal goals.

He identified key challenges for his region and others as preventing diesel toxicity pollution, which disproportionately impacts communities near highways and freight rail lines.

He also spoke about new financing methods for building capacity in the system, which is badly needed. We should look to the real estate value that can be created by coordinating land use and transportation investments. He also proposed new institutional structures in the federal government to allow greater investment funds to flow to transportation, a Fannie Mae or Freddie Mac for transportation. Mark also noted that public procurement processes are inefficient and add 30-40 percent to the cost of projects.

Some of the key questions/issues that emerged in the discussion that followed Mark's talk are below.

How do we get the general public and the business community to care about transportation?

Participants observed that many people and business leaders don't see transportation as a pressing issue. There must be a compelling personal reason for people to invest in the expansion of the system. In the 1950s it was the dream of suburbia, upward mobility and owning one's own home. How can transportation policy be translated into personal gains and a populist vision this time around?

Role of the Federal Government

The revenue stream from the federal government, even if it is a small percentage, is helpful in leveraging local and state funding, as well as to use as a hook to achieve certain goals or meet requirements. One participant cautioned against replacing federal revenue streams entirely.

Building a Coalition

Who are the members of the coalition, such as the construction lobby, that recognizes the power of the federal revenue stream and have the energy to push through legislation?

Role of local communities and regions

Ballot measures in which local communities tax themselves to pay for transit and new road capacity projects are increasingly successful. This seems to suggest leveraging federal money as much as possible coupled with strong planning roles at the local and regional level.

Getting more out of existing laws

Many of the goals for the transportation system existing in law in ISTEA or SAFETEA-LU but are not enforced or enforceable.

The need to tie transportation investments to economic development initiatives.

Mobility is more important to economic growth today than it was 50 years ago.

Day One

Responses to Michael Meyer's Presentation

Janet Friedl Kavinoky
U.S. Chamber of Commerce

- What do we mean by a "national vision"? What do we mean by a "national transportation system"? Our discussions are excluding freight rail, air travel and ports. We are talking about a vision for "highways and transit" and we should just call it that.
- The usual TEA language about the environment, congestion, economy etc. is not a vision per se, but a justification -- a reason for being. The vision was actually the interstate system. With ISTEA there came a dilution of the vision, and now the transportation bill is just something for everybody with no vision at all. It's very flexible, but system performance is not as good as it could be.
- There is no longer an agreed-upon vision for what the highway trust fund should accomplish. We need to focus back on the user and what the user wants.

Steve Winkelman Center for Clean Air Policy

- How will the imperative of climate issues change transportation? Vehicle technology, fuels, and travel demand are the three legs of the stool in transportation's impact on greenhouse gas (GHG) emissions. There has been lots of progress over the years in
- vehicle technology to cut emissions. Alternative fuels will have a limited contribution – about 10 percent GHG reduction. Travel demand growth has been the missing piece in discussions around climate change.
- Price signals on carbon are needed to control carbon emissions. It should be easier to build transit than a road. We need data and tools at the regional level, and good visuals to communicate different visions and different scenarios.

Discussion

Accountability and Better Performance:

We are all stuck in silos and it's helpful to see how other sectors have evolved. There's a big disconnect between vision and performance with no accountability for transportation dollars. Phone service is a good example – it used to be cheaper and simpler, but it has changed, offering more choice and services and costs more because of it. Transportation should do the same. Service providers should be more accountable.

On reducing VMT:

DOTs, DEPs, mayors and developers have very different ideas of impacts of the transportation system and they are differently motivated. VMT reduction will mean less driving, but many drivers do not have a choice and our pricing and elasticity assumptions are not considering that lack of choice. Our goal should be to make urban areas work first, and do VMT reductions later as a byproduct.

On creating a Vision:

A vision should be action and user-oriented, and tell people where the system is headed. It should offer something concrete, not just state negatives. The vision should be compelling and in plain language and it will need a good graphic plan.

The Role of the Federal Government:

Perhaps the federal government could just maintain the existing system. The national common denominator would be state of good repair on highways and transit. Capacity expansion could be left to the locals, and local entities could develop visions and plans for expansion.

As CAFE standards increase, congestion and VMT also increase, thwarting clean air goals. We need to deal with these tensions and improve all the measures. Pricing and

market-based reforms can help with this. One example might be the federal government mandating pay-as-you-drive insurance.

On National Purpose

The US DOT stopped trying to form a nation policy statement after several attempts. Now purpose-driven transportation system is not expected, and US DOT is comfortable with lots of little programs.

The US needs a list of objectives and then needs to encourage local and state plans to reach those objectives.

The national purpose needs to be outcome-oriented so that people can understand it.

We need a multi modal planning process at the national and megaregional level.

State and local resources are increasingly consumed by debt service, and state and local resources are a main source of funding for transit, plus the places with the most debt services are those with the oldest infrastructure where local option taxes will be least popular because they would support existing infrastructure. How can the federal government address this challenge? How can it change the ratio to favor transit and older regions?

Responses to Gary Maring's paper

Richard Voith eConsult

- Depreciation costs per person are increasing.
- The amount that U.S. taxes itself for transportation is not so much in comparison with other nations.
- Paying for the existing road stock is a challenge.
- In transportation, users tend to pay average costs, not marginal costs. If you don't do pricing, you end up rationing by queue, which means congestion.
- Public-private partnerships are ad-hoc; we need a more comprehensive view of highway pricing.

Tom Downs Eno Transportation Foundation

- The fastest growing state revenue source is debt.
- States are also increasing their reliance on non-user fee revenue.
- There may be some roads in rural areas that do not need to be maintained. This could help close the gap.
- A lot of urban roads were built with impact fees from suburban developers.
- The US government has made it very difficult for states to enter interstate compacts.
- Also, states cannot use federal funds for inter-city passenger rail.

Discussion

What the analysis does not account for

Federal debt is growing to unsustainable levels. The gap analysis presented is insufficient. It does not account for the growth in deferred maintenance. Also, the needs are not really determined yet and that presents a barrier to dealing with financing.

Overcoming political boundaries

The rest of the world – outside the US – is moving beyond political boundaries to make investment decisions. A federal program for investment has to support megaregions. Our transportation policy now ignores regions. MPOs do not fully arm regions to be competitive in the global economy.

Carbon markets

We should be asking what carbon markets can do for the transportation bill.

Links with other modes

Transportation funding can be better addressed by linking to other infrastructure needs in the US.

Price signals

When gas prices hit a high point, people will need transportation options.

Equity concerns

In addition to incentives for fuel-efficient vehicles, how can the federal government soften the blow of revenue raisers like the gas tax, especially for lower income people?

Highway Trust Fund Firewalls

Gas tax revenue is now spent on non-transportation infrastructure. We need a full accounting. Given the overwhelming federal budget problems, are the firewalls around the highway trust fund meaningful?

Maintaining the system

We need to re-make and re-manage existing infrastructure, not just create new.

Asset management should be at the system level not just for individual items.

Return on Investment

We don't know what the returns on our investments in transportation are and we do not have a way of evaluating those returns.

Responses to Mort Downey's Paper on Strategy

Anne Canby

Surface Transportation Policy Project

- We need a new coalition with members from outside the transportation field. STPP is in the process of putting this together.
- There is a natural problem with incentives. CMAQ money, for example, does not get fully spent each year so the amount given to states is lowered. Rescissions also threaten CMAQ money. But CMAQ is the only non-congestion-causing 'good' program. CMAQ is the only outcome-based program.
- When the highway trust fund runs out (September 2009), states will be under-funded and the policy discussion is likely to be overwhelmed by this crisis.
- Transportation is a tool to address other issue: housing, health costs, etc.
- There are existing institutional "jealousies" that prevent using megaregions as the new structure.
- Perhaps there could be one new pot of money for capacity expansion (both transit and highway). Also, perhaps we should not hide all the transportation funding behind the highway trust fund - - especially the new capacity money.
- Level the playing field between money for highways and money for transit

Al Harf

Potomac and Rappahannock Transportation Commission

- We've probably federalized too much. Only that which has national relevance should be done at the national level, such as state of good repair.
- Public private partnerships need to be approached by looking at how the public interest is served and how it can be served.
- The next federal transportation bill will be a transitional time, not the true advent of a new age or "next wave".

Strategy Discussion

How to build demand for change

It will require a public education effort to make clear that there is a problem. We must tap into angst around congestion, business inefficiency, etc.

Building support for the vision

We need to develop a vision and use the highway trust fund crisis to brief presidential candidates and others about it.

Can the right coalition jump start the “4th wave”? It would be preferable not to wait a generation.

We have to treat the next bill as a major change, regardless of if it will actually be a major change. We need to bring on the next wave ... with maps.

Preserve the integrity of the interstate; create a map of significant corridors and systems.

Some of the levers that might provoke change include: traffic congestion, dependence on foreign oil, climate change, choice for users, competitiveness, security, safety, community, trust fund bankruptcy

There will be different constituencies for different issues.

We need a unifying strategy that leaves no one out.

We need a straw dog proposal – something fairly specific as part of our strategy.

We need to bring business and development communities into the megaregion discussion and the transportation discussion to address land use decisions along with transportation planning.

Former big city mayors and others in office with pet issues such as bicycling, pollution or safety should be approached about the bill early.

Topics that must be included

Security. We’ve been lucky since 2001 and we need to find a way to factor in future unknowns.

Safety is a big issue yet unaddressed. Deaths and severe injuries should be minimized.

Demographics. Most of the planners are white, older men while most of the people who live in the areas they are planning for – in urban areas – are not.

Focus on processes, flexibility, and accountability.

A simple message must serve multiple users, purposes, and externalities.

The funding challenge

There are too many funding pots and it makes the policy too disjointed. There are pots for buses, trains, air, etc.

A change in the gas tax would not change the price of gas substantially.

We need to get past the donor/donee framework.

We need to learn from our competitors that balance transportation and land use in large agencies.

The federal government should use 24-hour population instead of residential population to allocate funds.

The next bill should equalize the federal match for capacity expansion regardless of mode.

The federal government should lift restrictions on interstate compacts.

Summary Discussion: Day 1

What is the message for constituents?

- This is a transformative moment
- Conceptualize and visualize the national physical outcomes
- Provide tools and resources to solve local problems
- Demand accountability
- Demonstrate that these are the facilities that we need to compete in the global economy

What is the federal role?

- Identifying specific national capacities and investments
- Border management
- Convening and organizing at the right scale
- Research and dissemination
- Setting ground rules for local innovation
- Get out of the business of regulation, conformity
- Relaxation of federal intrusion

We need a consistent evaluation and revue process across modes, measured by performance outcomes

Vision

- Clarify the federal role to be clearer, more precise, deeper, more focused.
- Couple this with a “deregulation of decision-making.”
- Empowerment of local and regional governments.

Financing

- Greater focus on performance measures, outcome based
- Align consumer decision-making with funding
- More real pricing (of impacts)
- Take funding flexibility to the next level
- Toughening of CAFE standards

Legislative Strategy

- What are all the legislative vehicles?
- Homework: What are the existing seeds in law vs. the barriers?
- What are the constitutional changes? Multi-state compacts require congressional approval on a case-by-case basis.
- What is the institutional entity to implement criteria for earmarks?
- Create a pilot program for local innovation: CMAQ, TCSP

A Possible Framework for a National Strategy

1. Sustaining the Interstate Highway and Transit Legacy
2. Strategic economic assets in key gateways and metros
3. National Commitment to rail: freight, inter-city rail, regional rail
4. Increased performance accountability
5. People and prosperity: affordability, housing, dealing with capacity and congestion.

Day Two

Passenger Rail Presentation

Janette Sadik-Khan
Parsons Brinckerhoff
Shelley Poticha
Reconnecting America

Today's "strategy" for Amtrak is a guide path to oblivion. There has not been a multi-year authorization bill in over 10 years. The federal government is interested in leveraging private sector participation in the program.

The Lott-Lautenberg Bill is in the senate. It proposes corridor development grants, capital grants to Amtrak, emphasis on safety, security improvements, operating grants that are reduced over time. One of the big issues that OMB has focused on is the need to restructure Amtrak debt.

The bill authorizes \$3.2 billion a year over 6 years.

The themes that we are seeing on Amtrak authorization are: the importance of stabilizing Amtrak, the importance of getting the system into a state of good repair, particularly in the Northeast Corridor, and an increased emphasis on rail security. People understand, particularly in the international context that many of the terrorist attacks occur on rail. There is a \$9:\$.01 ratio of investment in security between air and rail in the U.S.

Additional provisions that could be added to the bill:
Financing with tax free bonds.

Another opportunity is leveraging private sector participation with station area redevelopment (not in the Lott/Lautenberg bill.)

There are a menu of options and incentives to leverage private sector participation in Amtrak and station development. One goal is to create a Rail Passenger Development charge, a rail "PFC", similar to air PFC programs, to raise money for rail-station development.

Rail security also provides an opportunity for ROIs for rail station security investments. Tax credits.

Forty percent of Amtrak stations are privately owned. Stations are the missing link. How can we get buy-in nationally and at the state and local level? One way to get buy-in is to engage local communities around station redevelopment projects. Development opportunities exist across the nation around rail stations.

New York's Penn Station moves more people than all three airports in the region combined – about 500,000 people a day. There's a huge opportunity here. The project is to move Madison Square Garden into the back of the Farley Post Office across 9th Avenue, turn the rest of the building into a beautiful train hall, and then redevelop the area around Penn Station with a new train hall, improved access and office development. It brings light into the station, which could go down to the commuter track levels.

There are other station development opportunities around the nation, including Charlotte, Denver, Portland, etc.

There are positive examples of station redevelopment projects around the nation, but more often than not they are the result of "clever exceptionalism" rather than being the rule. They are just extremely difficult to pull off. So how do we make it easier to facilitate this kind of development?

We've all seen the success of Washington's Union Station, and it continues today. They are developing over the rail yards, there are new office buildings.

What are the ways we can leverage the opportunities and how do we build on local interest, which has a strong passion for redevelopment? And, how can we tie this to what we have on the demand side? How can we map it; what does it really look like?

A map was shown of intercity passenger demand (1995) combining auto, bus, air and rail. Eighty percent of intercity travel is by car. There are seven major corridors in which most of intercity travels are focused. What might an improved Amtrak map look like that also combines intermodal connections?

Air travel: Eight percent of scheduled air trips are less than 100 miles, 20 percent are less than 200 miles, and 57 percent of all trips in the lower 48 states are less than 500 miles in length! If we start to substitute some of these shorter trips with rail or better bus service, you see that the potential for substituting rail for air trips is much higher than might be expected.

Discussion

Intercity studies are all feasibility studies because we don't have the data, and we don't have the analytical tools. We tried to have the department sponsor a study for intermodal intercity demand analysis.

Analytical tools are now being developed but we're still missing the data. Take the example of New York-Philadelphia: if we had the proper tools, what would we learn?

There's a lot of money on the table. If it were spent in more productive ways it could result in huge gains in efficiency. The O'Hare expansion plan in Chicago is being pursued by Mayor Daley for six runways with no evidence that it will provide capacity in 2020. Overcoming intermodal barriers when it comes to ports and airports is a key challenge.

The airports and airlines come in and say "we can handle it" and thus we shouldn't even discuss it. We should overlay the freight movement with a map of key passenger rail corridors. Some of these lines that are shown are owned by freight lines. On the west coast, the passenger and commuter service is harmed by the requirement that they get out of the way of the freight operators.

All of these issues come together in terms of the lack of looking across the passenger-freight divide between the regions. State DOTs are moving forward with piecemeal expansions of I-95 without looking at freight rail or passenger rail expansion strategies that could provide alternatives, let alone short-haul coastal shipping strategies. We must look at this as we look at large-scale, megaregion-scale conurbations.

We don't have the data for the scale of the region we are looking at. In California, we have state-level data. What is the cost-effective tradeoff between different investments strategies? One of the conclusions we arrived at was that it's not an intercity issue, but an intraregional issue. When you start adding commute patterns side by side with intercity, we get demand that justifies major investments. In these global gateways, the freight-passengers tradeoffs are huge, as the volume of goods movement starts to double and triple. The tradeoff among modes in these large urban regions is very real. If the federal government does not allow trade-off analysis at this large, megaregion scale, then the global gateway concept we're talking about becomes unreal.

The need for institutional reform because of these tradeoffs is very real. There is a federal role, but for many of these large-scale regions, the issue is between freight rail and passenger rail. There is an overriding need for institutional reform. And it is not the way that most people in Congress are approaching this, which is pouring more money into the same base. We really need to have institutional reform and most of it needs to be driven at the state level.

We need a set of folks working together on a research agenda: what are the data needs to move this project forward? We should check with the university research centers.

Another strategy is the "camel nose" of looking at opportunities for legislative strategy.

Wrap-up Discussion on Vision and Strategy led by Bob Yaro.

Bob Yaro presented the following outline for a national vision to guide a national transportation strategy.

1. Global Gateways

- Air-Rail-Bus hubs, Seaports, Freight, and Border Crossings

2. Highways

- Rebuild, sustain Interstate and federal-aid highways
- Manage system – congestion pricing, intelligent transportation systems etc.
- New Capacity – local option/ PPPs, TOTs

3. Rail

- National Rail Freight Network (tax credit)
- Intercity rail in Megaregions
- Metro rail – commuter rail, transit, buses
- Inter-modal Links

4. Program of Accountability and Performance Standards applicable to all elements above.

Discussion

Gateways and corridors must also refer to Chicago, which is a key freight gateway for all the freight coming in from the West Coast.

There's nothing in here about people and communities, getting at pedestrian activities, which transit really leverages. This is a lot about hardware and it doesn't get at the message of transportation choice, building communities, etc.

We could get at those concerns through performance standards to discuss community design, sidewalks, and all the things needed to lower VMT, etc.

This is modal, and I'd like to suggest that we get away from modal. Two principal concepts are connectivity, for which there is a great American tradition and a continuing federal role. It ties into gateways, ports, freight, etc. The second concept, mobility, is driving the concept of megaregions. Regions should be held to quantifiable standards of mobility. If they do well, then they have access to federal funds.

My worry about this list is that it reads primarily as a wish list of construction projects. I am all the way there on accountability and performance standards. But if people and place are relegated to accountability standards, which have never actually been delivered on. Then we are not going to see this set of investments fundamentally change the way we build our cities and regions. It doesn't seem to have enough push in that regard.

If we add a fourth component about people and place, then talk about regions directing growth, or linking regional development patterns to our transportation investments, then we get a more robust vision.

I think this is important component of the vision but not sufficient. This begins to articulate what the national system is, what the federal role ought to be. Coupled with this set of investments and capacities, we need to create the tools and flexibility and institutional arrangements at the sub-national level, whether that's metropolitan or megaregional, or at a state level, that allow us to make choices about this system in a way that deliver the accountability and the outcomes.

We need to conceptualize a very precise role for the national interest and a set of capacities at the sub-national level that will allow us to execute with a greater degree of innovation and flexibility.

The national level program also must be comprehensive, and while this list doesn't preclude that, I don't think it comes across in the words we've chosen. It needs to be comprehensive across modes, comprehensive in addressing local mobility and sustainability, and comprehensive geographically, so that we articulate a system that unifies the national but leaves no part out. It's not inconsistent with what we have, but it's just not stated.

The word that comes to mind that we are striving for in this discussion is integration, in trying to describe what we're doing. We are trying to integrate modes, institutions, and funding streams.

One of the next steps is to put together a map that would look at a couple of these megaregions. The design of these systems needs to take place at the metro and megaregion scale.

One of the things I'm trying to do is learn from the experience with all the "T" bills, where all the words were in there, but all we got was 6,000 earmarks. This outlines tries to acknowledge that there is a physical system.

It seems to me that there's a compelling list of hardware project that do frame an integrated, national network. On the plus side, it starts to make a more compelling case for why the megaregions framework makes sense. Coming out of this meeting, we need to make a case for an integrated, national network of essential transportation investments as a nation of megaregions, on the transportation infrastructure system.

This makes a lot of sense from a megaregions point of view. But it may not make much sense from a local planning and pedestrian point of view. The ability to further put together a coalition together for the investments at the megaregion scale. We should discuss what this group can do, as opposed to what other groups can do.

We should actually list the outcomes. I don't believe that mobility and congestion relief are sufficient motivators to move forward this agenda.

If our goal is to have a presidential candidate speak a paragraph somewhere to this effect, then I think we have the right message. If we complicate it more, then people begin to lose interest.

Institutional change is not a subset, it's a key driver: restructuring DOT, creating new megaregional institutions. Second, I would change "rail" to "transit." It should be intercity transit, because the solution may be bus rapid transit, or Maglev.

We should have explicit bullets related to freight.

There are three dimensions to be thinking about this. They are modal, scale (five scales: global, national, megaregion, regional, community); and outcomes. Outcomes have to with competitiveness, climate change, choice, etc.

The word accountability does not set forth a vision, but rather a sense of responsibility. Bruce Babbitt's term of "conditionality" means that all of the participants must deal with a set of conditions, such as community building. I think it sends a signal that the federal government and the national strategy are trying to do something with building communities. This should be part of the federal direction. I think this will help grab the attention of the general public, which wants more parks, more design, etc. I would suggest that we add the term conditionality.

I can see the appeal of this frame, and yet it worries me that we are stuck in highways vs. transit silos. It worries me that it doesn't address a lot of the things we discussed, such as the need to consider people rules and incentives for all new capacity. So I wonder if it makes sense to make #2 highways, rail and new capacity. Then on number #3 I would focus on the service side, information integration and performance, how to you manage the system? And it applies across the board to all new capacity.

This makes sense, but I think the lesson we've learned is that we put all those words on the T-bills, and what we got were earmarks.

Let us go back to the issues of connectivity and connections. Number 1 is connecting to the world. Number 2 and 3 combined is connecting to each other. If you have that as the major topics, you've got interstates and highways. In the parlance of performance measurements, these are outputs. I think we need to raise this to the outcome level. The outcome is connections.

There should be three themes: 1) Global economic competitiveness, 2) Interregional connectivity, and 3) Regional mobility and sustainability

Or: Connecting regions, connecting communities, connecting to the world

There's a structural thing that has to do with the megaregions that is new. It is a way of doing this that is innovation. We should not submerge that. We should call attention to it. How we will do business now is organizing at a higher level than we have in the past. It is a new institutional approach.

The other item that has been mentioned a lot is the people and place making. I think concretely this is something that people understand. It's an outcome and it deserves to be up here.

Bob Yaro presented a series of proposed follow-up steps.

Where we started is with the majesty of a simple, physical plan that captures peoples' imaginations. So we need to think about how to organize ourselves moving forward. How do we work together? There are different groups with efforts underway. What are people's thoughts about how to do this?

There are other major players that are not here. ARPA – the construction industry already has something on the table. ASHTO is putting together a huge effort. The U.S. Chamber is also working on something.

We are still struggling here around what is the national consensus. The important thing at this stage is to talk to each other, influence other efforts, and influence the national commission. Then we'll have a sense of the best time for formal advocacy at the national level. I think the most important thing is going to be the 2008 election.

I want to second the idea that jumping to coalitions at this point just waters down our message by making the tent big enough. I think we should focus on have a clear message.

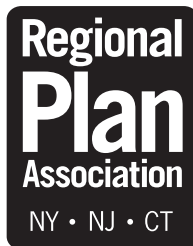
We should get stuck on just the surface transportation bill, but also look to the other legislation that will have impacts. I would suggest that our effort not be a research effort but a framing effort.

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